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Chemicals
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Chemical Trade Journal
Supplement, July 6th, 1893.

THE
CHEMICAL TRADE
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A WEEKLY NEWSPAPER DEVOTED TO

The Commercial Aspect of the Chemical and Allied Industries.

EDITED BY

GEORGE E. DAVIS.

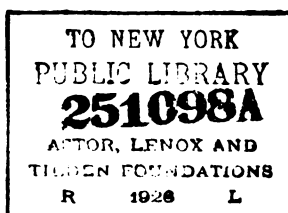
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VOLUME XII.

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THE PAST, PRESENT, AND FUTURE.

WITH this issue we enter upon the year 1893, and also the twelfth volume of this *Journal*. As is our wont, therefore, we shall proceed to briefly review the advances or reverses which the industries directly connected with the chemical trade have experienced.

In the scientific world, the chief features of the year have been the death of Hofmann, and the proposal to found a Hofmann Institute, which proposition was considered by the German Chemical Society when celebrating its Jubilee, last November. The losses which the cause of pure science has suffered, by the death of some of its greatest investigators, have been very heavy, and the chemical trade has not fared much better.

THE CHEMICAL TRADE.

The year 1892 has not been without noteworthy incidents. New works have been started to work the ammonia-soda process in the Northwich district, and the works at Fleetwood are in a very forward condition, Donald's nitric acid chlorine works at Kilwinning, near Irvine, have been put in operation and we regret having now to chronicle a smokeless chimney. Davis's Chlorine Processes Company has built large works near Northwich, but it is not yet certain what success has attended their efforts. The alum trade is in a despondent condition, mainly owing to the importation of a very pure alum cake from Germany, while the bichromate of potash industry may be said to remain under a dark cloud, the syndicate having closed works owing to unremunerative prices and the competition of bichromate of soda. On the other hand, low prices should stimulate consumption, vitriol was never cheaper than it is to-day, and both caustic soda and soda ash are considerably cheaper than at this time last year. Bleaching powder, though it rose to an abnormal figure during the cholera scare, has now resumed its *status quo* and is likely to continue at the present price for some time. Other hard chemical products have continued during the year without much change, and every nerve is being strained to foresee, if possible, what the new year is about to do for the producers.

THE TAR AND AMMONIA PRODUCTS

trade has continued throughout the year in a most unsatisfactory state, mainly brought about by the fact that foreign producers of benzol from coke ovens hold the key to the position, and their production has hung like a Damoclean sword over the heads of English producers.

Not only in benzol is this the case, but it is equally so with most other tar products, to such a degree that British producers in self-defence have had to form a syndicate to control supplies. Under the influence of the syndicate, prices have somewhat recovered, and 90's benzol, standing for a long time at the unremunerative price of 1s. 6d., has risen first to 1s. 10d. and now stands at 2s. 1d. and even higher. Crude carbolic also holds a rather more exalted position

while anthracene cannot be reckoned with in the near future.

It is easy, however, to kill a goose that lays golden eggs, and it must not be forgotten that the process that yields benzol from coke ovens also produces anthracene in fair quantity. The year has seen one more British alizarine works closing its gates, even with anthracene at such an abnormally low price.

The sulphate of ammonia market has experienced one continuous spell of low prices throughout the year, and the cry of no demand has been reiterated through the year with much success; still, reference to our export figures will show that a very much larger quantity than heretofore shipped, has been sent away from the five principal ports of the United Kingdom. The disasters in the Scottish oil trade, and the closing of some of these works, will, no doubt, have a beneficial effect as regards the price of this commodity. The recovery of the waste products from blast furnaces where coal is used as fuel, still continues to increase, and very large sums of money have been expended in appliances for effecting this object. These recovery processes have brought enormous quantities of oils into the market, but there seems a sale for them.

GLASS, BRICK, AND TILE MANUFACTURERS

have had, on the whole, a brisk year, and there is every reason to suppose that they will enjoy as fair a proportion of trade in the present year as they did last. The special attention which has been given to the manufacture of fire-bricks has led to the introduction of a new kind of brick recently, while those who have been busy in devising means to line tin and other metals with glass, have a good prospect of reaping their reward. The number of deaths which have occurred during the past year through the consumption of tinned edibles has attracted the attention of the public, and the preference will almost inevitably tend towards such viands as have been preserved in glass and glass-lined vessels.

CALICO PRINTERS AND DYERS,

though by no means as busy as they would like to be, are certainly in a better position than they were at the commencement of 1892. The attempts to effect a combination of forces have not been totally devoid of good results, but the present improvement will not be of lengthy duration, unless the trade recognise the importance of bringing the advances of chemical science to bear upon their industry, and substitute men of reason who exercise judgment in the purchase of raw materials, for the exponents of the rule of thumb, who often, moreover, only gauge the suitability of the goods they order by the value of the tip they receive for advising the use of the same.

We now come to our friends

THE CHEMICAL AND MINERAL MERCHANTS AND DRYSALTERS

There has been nothing very startling to chronicle during the past twelve months as far as chemical merchants and drysalters are directly concerned, with the one exception of the important decision which has been made in the Law Courts respecting the rights of miners of minerals and clay to work the same. Owing to the dulness prevailing in the textile industries the demand for chemicals and drysalteries in that direction has not, perhaps, been as strong as we could wish, but taking into consideration the general tone of the chemical trade, there is room for congratulation, as things might have been much worse, while the future gives promise of the present position being maintained.

OIL, PAINT, COLOUR, AND VARNISH MANUFACTURERS

experience, as a rule, little change save that which invariably accompanies fluctuation of trade in general. The oil industry of Scotland, has, however, had to encounter many storms during the past year, the effects of which have left their mark on the industry. It is simply impossible to make a forecast of the future, inasmuch as at present, the changes which have followed each other in such rapid succession have left matters in a state little short of chaos. The paint and colour manufacturers also are in danger of having their usually tranquil sphere of labour invaded by the intrusion of the representatives of sewage and river purification committees. The effluents from their works will, no doubt, be subjected to closer inspection, and to judge from the various prosecutions which have been instituted against Messrs. Adolphe Crosbie and Company, the colour manufacturers of Wolverhampton, there seems to be a weakness on the part of Corporations to prosecute those who do not fulfil to the very letter the conditions which they think fit to impose.

These facts only emphasise the need there is for those interested in the paint and colour industry to keep themselves in closer touch with such matters, which they will do most successfully by availing themselves of the information which is to be gathered from these columns, in which their interests are specially looked after, and may be fostered to the best advantage. In conclusion, there are one or two points to which we should like to call attention, and these being of interest to all, it will be best to address what is to follow to

OUR READERS.

This category is a very extensive one, and includes a great many industries, all of which have received due consideration at our hands throughout the year that has just ended. In the foregoing we have, owing to the limitations of space, been compelled to give but a brief and superficial summary of the chief features of '92, but a more exhaustive treatment of this subject has been held over until the publication of our *Annual Special Issue*.

Finding that the change which we made last year, in postponing this special number till the third week in the New Year, was attended by advantages which fully warranted the further adoption of the practice, we shall on the 21st inst give to our readers a number which we confidently anticipate will eclipse any former effort. In the meanwhile we take this opportunity, as being the most fitting, to wish one and all of our numerous readers, whether in this country or abroad,

A HAPPY AND PROSPEROUS NEW YEAR.

AN OBJECT LESSON IN AGRICULTURAL EDUCATION.

(Continued from page 415, Vol. XI.)

HISTORY AND USE OF FERTILIZERS.

THE historical outline of commercial fertilizers and the principles underlying their use contained so much valuable information that a *résumé* of the bulletin has already appeared in these columns (*C.T.J.*, Nos. 264 and 271). But since then, additional information has been given, from which we cull such parts as are more particularly suited to our purpose of showing the nature and value of the assistance rendered by this organization to farmers, possessing little, or any knowledge of chemistry.

PHOSPHORUS.

This element is always found in nature combined with other substances. It occurs combined with oxygen and calcium (or lime) and this compound is called calcium phosphate or phosphate of lime.

occurs in soils as phosphate of magnesia, phosphate of alumina. Calcium phosphate or phosphate of lime is found in some soils and in the bones of animals.

Phosphates, like the nitrates, are found everywhere in the soil, and of great value in their relations to plants. The phosphates in the bones are taken into the animal body in the food. All foods used as food contain small quantities of phosphorus compounds which they get from the soil. The phosphates taken into the body are partly given off in the excrement and urine.

Experiments have shown that plants will die before reaching maturity, if they have phosphorus compounds to feed upon. Phosphates are used to perform two distinct functions for plants. First, they themselves aid in the nutrition of the plant, and, second, they aid the plant, in one way or other, to make use of or assimilate the other mineral elements. Phosphorus is mostly found in the seeds of the plant, as already stated, a plant does not come to maturity, and so does not produce seeds, unless phosphates are present in the soil for the plant to feed upon.

VARIETIES OF PHOSPHATE OF LIME.

There are three phosphates of calcium (or lime). These are called:—

Insoluble Calcium Phosphate.

Soluble Calcium Phosphate.

"Reverted" Calcium Phosphate.

Insoluble Calcium Phosphate. This is also known by several other names, as *Insoluble Phosphate of Lime* or of *Calcium*, *Calcium Phosphate*, *Phosphate of Lime* or of *Calcium*, *Normal Calcium Phosphate*, *Phosphate of Lime*, etc.

This form of calcium phosphate is called *insoluble* because it does not dissolve in water.

It is found in nature in large quantities in several minerals. It also constitutes about 85 per cent. of the ash or inorganic matter of bones. It is also contained in the excrement of animals, as in guano, etc.

Insoluble phosphate of lime is found everywhere in the soil. However, in this form, calcium phosphate has the least value for the farmer, because it is not easily dissolved and cannot, therefore, be taken up and used by plants, except very slowly. To make the insoluble phosphate available for plants so that they can take it up, the insoluble phosphate must be converted into some form which is soluble, that is, which dissolves in water. This can be done by treating it with nitric acid (oil of vitriol).

Soluble Calcium Phosphate, is known by various names, as *acid calcium phosphate*, *acid phosphate of lime*, *super-phosphate of lime*, etc. It is not found occurring naturally.

As indicated above, the soluble calcium phosphate is made by treating insoluble calcium phosphate with sulphuric acid. By this treatment, the acid of the calcium is removed from the phosphate and unites with the sulphuric acid, forming calcium sulphate or sulphate of lime, in addition to the soluble phosphate. This mixture of the soluble phosphate and sulphate of calcium is known as "superphosphate of lime." The phosphate in this form being easily soluble in water can be readily taken up by plants and is therefore, of great value as a fertilizer. The sulphate of lime is also known to have value as a fertilizer.

The value of superphosphates depends mainly upon the amount of soluble phosphate contained in them.

"Reverted" Calcium Phosphate or precipitated phosphate of lime. When a superphosphate is allowed to stand for some time, it may be found that some of the soluble phosphate is converted by contact with certain substances into a less soluble form of phosphate. This is the same form as ordinary insoluble calcium phosphate above described for a "reverted" phosphate, while insoluble in water, can be readily dissolved by weak acids or by water containing carbonic acid or salts of ammonia. Since the soil and plant roots generally are in acids sufficiently strong to dissolve "reverted" phosphates, phosphoric acid in this form is generally regarded as very nearly equal in value as a fertilizer. The term "reverted" was introduced to express the fact that the phosphoric acid in this form was once been soluble in water but that it had "reverted" or "gone back" to a form insoluble in water.

Relation of Phosphates to Fertilizers.—The fact that phosphorus compounds are absolutely necessary for the maturity of plants indicates that phosphates are essential to complete fertilizers. Soils become deficient in phosphates more quickly in general, than in other fertilizing elements, and, therefore, when the use of fertilizers is needed at all, phosphates are generally required, whether with or without other fertilizing elements.

THE WASHING OUT OF PHOSPHATES FROM THE SOIL.

The ordinary form of calcium phosphate being insoluble in water, is to any appreciable extent, removed from the soil by the drainage water.

The soluble form of calcium phosphate would probably be lost to some extent in drainage water, were it not for the fact that it is quickly

changed in the soil to the "reverted" or less soluble form, and, in this "reverted" condition, the phosphate is not apt to be carried away in drainage water.

POTASSIUM COMPOUNDS.

In using the term potash in connection with fertilizers, potassium oxide is always meant. The compounds of potassium are commonly called potash compounds, because it was formerly supposed that potassium oxide was present in all of them.

Potassium combined with chlorine forms potassium chloride or chloride of potash or muriate of potash, etc. Potassium and sulphuric acid form potassium sulphate or sulphate of potash. Potassium and nitric acid form potassium nitrate, also called nitrate of potash and saltpetre.

CALCIUM COMPOUNDS AS FERTILIZERS.

Sulphate of lime or calcium sulphate, commonly called *land plaster*, is, as is well known, often used as a fertilizer. Its value is due to its action as an *indirect* fertilizer. There has been much difference of opinion as to the manner in which sulphate of lime acts. Probably it acts in, at least, the three different following ways:

First, it has the power to form compounds with ammonia in which the ammonia is no longer in danger of loss by evaporation. This power of fixing ammonia is probably of little value when plaster is applied to the surface of the soil, but it may be of much value when scattered over a heap of fermenting manure, and moistened with water, when it will retain all the ammonia which would otherwise escape. For the same reason plaster is useful to distribute about stables, so that it may mix with the manure.

Second, it has been shewn recently that sulphate of lime, in some unknown manner, aids the process of nitrification, by which ammonia and the nitrogen of organic matter are converted into nitric acid and nitrates.

Third, sulphate of lime acts upon the insoluble forms of potash and some other elements of plant food, converting them into soluble and available forms, which plants can readily take up and use. This is probably the most important effect of plaster as an indirect fertilizer.

In whatever way plaster may act, it is well established that it is of value when applied to certain crops, such as clover, peas, lucern and similar plants.

THREE ESSENTIAL FERTILIZING ELEMENTS.

In the absence of iron in soil, plants turn yellow and cease to grow; and other elements, as chlorine, sulphur, etc., are essential to the complete development of a plant. But these elements are used by plants in very small quantities, and, moreover, they occur abundantly everywhere in soils; therefore, it is unnecessary to supply these elements artificially to the soils, and we do not need to consider them in connection with fertilizers. The elements which experience shows to be generally lacking in soils are three in number,—nitrogen, potassium, and phosphorus.

CONSTITUENTS OF SOILS.

General Composition.—Of the fourteen elements necessary to perfect plant growth, ten come exclusively from the soil. These have already been described, and we do not need to give further attention to them in this place. The soil-derived elements, though forming on an average only about five per cent. of the whole vegetable kingdom, are of the utmost interest and importance to the farmer; for, while the atmosphere is entirely beyond his control, he can, through the medium of the soil, influence the amount of vegetable production.

Soils consist of decomposed rocks, mixed in varying proportions with organic matter called humus, formed by the decay of animal and vegetable substances. The principal part of the soil was once solid rock, and the first step toward the formation of soil was the powdering of the rock. The conversion of rocks into soil has been accomplished by means of various agencies, such as heat and frosts, moving water and ice, chemical action of air and water, and the influence of animal and vegetable life. The value of a soil for agricultural purposes depends largely upon the original material from which it was made, and upon the state of fineness to which it has been reduced.

Food constituents include the ten soil-derived elements which are essential to the development of plants. They may be divided into two kinds, *available* and *unavailable* food constituents.

The *mechanical constituents* of the soil include clay, sand, and humus. These act as a mechanical support to plants and as indirect fertilizers. Clay has the power of absorbing and retaining a large amount of water, thus preserving a sufficient amount of moisture in the soil. Clay has the power also of holding ammonia and some mineral salts and again giving them up to plants. Clay, therefore, acts on the available elements of the soil as a sort of regulating material, retaining or yielding them by turns as the earth passes from a state of drought to one of excessive humidity. Sand serves, when mixed with clay, to diminish its compactness, and makes it more porous and permeable to the air.

Humus is the organic matter in the soil formed by the decay of animal and vegetable matter. It is brown or black in appearance. Leaf-mould, swamp-muck and peat are varieties of humus, differing in appearance according to the conditions of their origin and formation. The decay of roots, the ploughing under of sod and stubble, and the application of manure cause the formation of humus in the depths of the soil. The composition of humus is somewhat doubtful. It is probably a variable mixture of several substances. Humus is extremely valuable as an indirect fertilizer, for the following reasons:—First, humus absorbs water much more extensively than any other ingredient of the soil, and thus promotes moisture of the soil; second, humus aids in the decomposition of the mineral matters of the soil, changing unavailable into available plant food; third, humus fixes ammonia in the soil, so as to prevent it from being carried off by the rains, it afterwards gives up this ammonia to plants. Humus is, therefore, a very desirable constituent of the soil and the beneficial effects of stable manure and green manures are doubtless due, in some degree, to the abundance of humus which they furnish to the soil.

RELATIONS OF PLANTS AND SOILS.

The general offices which the soil fulfills in its relation to plants are of three kinds. First, the soil acts as a mechanical support for plants; the roots of the plant penetrate the soil downwards and sideways, and brace the plant firmly to its upright position. Second, the soil furnishes directly all the soil-derived elements used by the plant, and is thus immediately connected with the nutrition of plants. In addition, the soil serves as a medium for conveying to a plant a considerable portion of the air-derived elements. Third, the soil contributes to the development of plants by modifying and storing the heat of the sun, by regulating supplies of food, and, in various ways, by securing those conditions which must be present and unite to produce the fully developed plant.

COMMERCIAL FERTILIZING MATERIALS.

We will now consider some of the principal substances which are used either alone or in mixtures, as commercial fertilizers. Some of the materials used contain two or all three of the most important fertilizing elements, viz., phosphorus, potassium, and nitrogen. But, as a rule, when the same substance contains two or more important food elements, one of these elements is present in very much larger proportions. Thus, in the case of wood ashes, we value them for their potash chiefly, though they contain a small amount of calcium phosphate also.

PHOSPHATES.

The following are the names of the principal fertilizing materials containing phosphates, which are common in the market:—Bones, ground bone or bone meal, bone ash, bone black, superphosphates, phosphatic guanos, rock-phosphates, Thomas-slag.

Bones consist of two kinds of substances, one kind hard, composed mostly of calcium phosphate; the other kind soft, flesh-like, containing much nitrogen. The nitrogenous portion of bones is called ossein, commonly known as gelatine. When bones are burned, the nitrogenous matter is driven off, and only the mineral portion or phosphate of lime remains. Bones, such as are used in making commercial fertilizers, contain from 50 to 60 per cent. of phosphate of lime, and 5 to 7 per cent. of nitrogen.

Ground Bone goes under the various names according to its fineness, as bone-meal, bone-flour, bone-dust, etc. One reason for reducing bone to a finely-powdered condition is that it decomposes more readily in the soil, the finer it is; and it is, therefore, more quickly brought into an available condition as plant food. Ground bone or bone-meal should contain from 20 to 25 per cent. of phosphoric acid, and from 3 to 4 per cent. of nitrogen. There is a considerable tendency to adulterate bone-meal with such substances as lime, gypsum, coal ashes, ground oyster shells, ground rock phosphate, etc.

Bone Ash, as the name implies, is made simply by burning bones in the open air. The nitrogen is, of course, driven off and lost in burning, and the chief constituent is insoluble calcium phosphate, equivalent to 30 to 35 per cent. of phosphoric acid.

Bone Black, known also as bone charcoal, is extensively used in refining sugar. After it has been used several times, portions become useless for refining purposes and are then sold as fertilizers. Good bone black may contain as much as 30 per cent. of phosphoric acid.

Superphosphate are known under several names, such as acid calcium phosphate or acid phosphate of lime, soluble calcium phosphate, dissolved bone, etc. The method of preparation has already been described.

When bone-black is changed into super-phosphate by treating with sulphuric acid, it is known as "dissolved bone-black." The number of phosphate substances which can be used in making super-phosphates is considerable, in fact any insoluble phosphate which is in a sufficiently fine state of division to permit the acid to act upon it can be used. The comparatively high cost of bones has led to the general use of mineral or rock phosphates in making super-phosphates.

Phosphatic Guanos or Rock Guanos.—Guanos generally consist chiefly of the dung of sea fowls, though the term is applied to other animal products. They are generally found in beds resembling earthy deposits. The guanos which are called phosphatic contain little or no nitrogen. Their phosphoric acid is generally in the form of insoluble phosphate of lime, iron and alumina. These guanos come mainly from certain islands in the Pacific Ocean, and from Caribbean Sea and the West Indian Islands.

POTASSIUM SALTS.

The following are the names of the principal fertilizing materials containing potassium compounds, which are common in the market:—Muriate of potash, sulphate of potash, kainite, karnallite, sylvinite, etc., nitrate of potash, wood and other kinds of ashes, cottonseed hull ashes, tobacco stems, greensand marl.

Muriate of Potash, known also as chloride of potash and potassium chloride, is the main source of supply of potash for commercial fertilizers in our markets. Most of the material comes from the mines in and around the town of Stassfurt, in northern Germany, where the supply seems to be practically inexhaustible. This muriate is somewhat variable in composition, but contains on an average, an equivalent of from 50 to 54 pounds of actual potash (potassium oxide) in every 100 pounds.

Sulphate of Potash, also known as potassium sulphate, comes from the same source as the muriate, the Stassfurt mines. Its cost is higher than that of the muriate. Pure sulphate of potash contains an equivalent of about 50 pounds of actual potash in every 100 pounds; but the best of "high grade" sulphate that comes into the market contains only from 30 to 35 pounds of potash in every 100 pounds.

Kainite, the most common product of the Stassfurt mines, is a mixture of several compounds, chief of which are chlorides, and sulphate of potassium, sodium, and magnesium. The potash in Kainite averages 12 to 13 per cent.

Nitrate of Potash, commonly called salt-petre or nitre, also known as potassium nitrate, is a valuable fertilizer not only for its potash, but also for its nitrogen. The great demand for this substance in the manufacture of gunpowder has raised its price so high that it cannot profitably be used as a fertilizer.

NITROGENOUS FERTILIZERS.

The various sources of nitrogen compounds which are used for fertilising purposes are the following:—Nitrate of Soda, Nitrate of Potash, Sulphate of Ammonia, and Guanos.

Nitrate of Soda commonly called "Chili salt-petre" also known as sodium nitrate, is found in extensive deposits in the rainless regions of Chili. As usually found in the market, it contains in every 100 pounds from 15½ to 16 pounds of nitrogen.

Sulphate of Ammonia or ammonium sulphate is produced from a by-product furnished in the manufacture of illuminating gas. In every 100 pounds, it contains about 25 pounds of ammonia which is equivalent to about 20½ pounds of nitrogen.

SOLID AND LIQUID MANURES.

It is not an uncommon belief among farmers that urine is worthless for fertilising purposes, if we may judge anything from the too general practice of allowing the liquid excrements to run to waste, a more erroneous idea could hardly be conceived. Not only are the proportions of nitrogen, phosphoric acid, and potash greater, as a rule, in the liquid excrement than in the solid; but, the fertilising constituents of urine are entirely soluble, and therefore more readily available for plant food than the constituents of solid excrements.

(To be continued.)

MORE CONDENSED MILK PROSECUTIONS.

A BATCH of half-a-dozen defendants appeared at the Brentford Petty Sessions, recently, to answer summonses issued at the instance of the Middlesex County Council for having sold condensed milk from which fat had been extracted to the extent of from 50 to 80 per cent. In the first case heard—that of Mr. Alfred Platt, of Ealing-road, Brentford—the abstraction was certified to amount to 80 per cent. Mr. Stephen Woodbridge, solicitor, prosecuted for the Middlesex County Council; Mr. Besley and Mr. Slade Butler appeared for the defence. The facts relied upon by the prosecution were that the defendant's manager sold to the inspector a tin of condensed milk for 3½d., and that in doing so he did not call the attention of the inspector to a label on the can till after he had intimated that it was bought for analysis. The label in question was to the effect that "This tin contains skim milk, with nothing added but water." This, it was submitted, was not a sufficient disclosure of the fact of the abstraction to comply with the requirement of the 9th section of the Act; that the

should not sell without making disclosure of the fact of the action. The certificate of an analyst was in the following terms:—"In my opinion that this sample has been made from milk from which at least 80 per cent. of fat has been abstracted before concentration as to affect injuriously its quality. Its nutritive value is only fifth that of genuine condensed milk." For the defence it was admitted that the 9th section did not apply to the case of a manufactured article unless such article was adulterated or altered after manufacture, which could not be said to be the case with condensed milk.

It was also argued that condensed milk consisted of the fleshing qualities of milk, with 46 parts in 100 of cane sugar added; the sample was sold as condensed skimmed milk; and that the defendant's manager having been called to the label on the tin was a sufficient disclosure of the abstraction. Sir G. S. Measom, against the advice of Mr. Besley, recalled the inspector, and asked him if the defendant's manager gave him notice of the label before he purchased. Tyler replied that it was after the purchase. Defendant was fined £10 and costs. Notice of appeal was given. In the case of Frederick Taylor the abstraction of fat was certified to be 50 per cent. This differed from the other case only in the fact that it was suggested by the defence that the milk was stored on shelves, and that a label was placed in front of the shelf showing it to be condensed skimmed milk, the cost of £3, with one guinea costs was inflicted. Notice of appeal was given in this case also. The other cases were adjourned pending the hearing of the appeals to quarter sessions.

SOAPS AND LUBRICANTS USED IN SCOURING WOOL.

BY DR. A. LEHNE.

(Continued from page 427, vol. XI.)

TEXTILE SOAPS.

The different kinds of soap used in the textile industry will now be considered. The same remarks about lubricants also apply to soaps. Use only the best, that is the purest kinds. Of what use to give great attention to secure a good quality of lubricant if an inferior, unclean soap is used for fulling, supplying the wool with impurities in place of removing them? A soap must consist only of fat, easily saponified. The final product will be of the nature of final detergent. Soaps which contain considerable quantities of alkalies, resin soaps, unsaponifiable matter, such as resin oil and mineral oil, filling agents, flour, silicate of soda, etc., are entirely objectionable.

The purest soap, but, at the same time, the costliest, is the castile soap. It contains on an average only 30 per cent. of water and 70 per cent. of soap, and is almost neutral, that is, free from essential quantities of unsaponifiable fat or excessive alkalies. Good castile soap is white, homogeneous body, and dissolves without residue in hot water. As stated, it possesses no excess of soda lye; in consequence of which, it does not attack the wool fibres. Castile soap, on account of its high price is used only for silk and washing very fine woollen goods.

The action of a soap is based upon the chemical and physical characteristics of its solution. The chemical action is due to the fact that soap, therefore neutral sebate of alkali, if dissolved in a large quantity of water, undergoes a partial decomposition, whereby bisoapate of alkali and a free corrosive alkali are formed, the energetic, dirt dissolving, cleansing nature of which is well known to us all. The physical action of a soap solution is that it wets yarn and material very readily, thereby displacing the air. While it penetrates into the wool with great avidity, it loosens its combination with the fatty and mineral bodies, and keeps them in emulsion or suspension, so that in the washing they are rinsed away with the soap.

In the fulling operation soap not only acts as a detergent, but makes the wool fibres soft and plastic. The mechanical pressure of the fulling causes the single wool fibres to draw together closely and to interlock, and this capacity of the fibres is still further increased by the heat employed by the friction. When the fulling operation is ended and the soap washed out, and the condition to which the single fibre owes its great capacity of conforming is reached, the fibre remaining in its fully assumed position.

The view generally entertained that the single serratures of the fibres enter into each other during the fulling process, and that the phenomenon of felting can be explained by this is not confirmed by the microscopic examination of the cloth. I have examined many pieces of firmly fulled cloth by the aid of a microscope, but never observed that even three or four scales of two wool fibres lying closely together were united in the manner as is often depicted. According to the illustrations, the scales of the wool seize each other similarly to

the teeth of two saws if suitably placed together. If this view were correct, we would have to assume that only two fibres lying contiguous to each other and in a reverse direction would properly felt, because only in this condition are the scales in a proper position for complying with this demand.

DISADVANTAGES OF HARD WATER.

Before concluding my remarks, I would call the attention to the enormous loss entailed by the use of hard water in washing and fulling. In the former case the loss is naturally much more important, because very little water in proportion to soap is used in fulling. All the fatty acids can be precipitated as lime salts from a soap solution by using chloride of calcium, as is done in the recovery of the fulling fat. The lime and magnesia salts also behave like the chloride of calcium, and these salts, which are found in varying quantities in every natural water, impart to it the peculiarity known as "hardness." The greater quantity of such salts a water contains the harder it is. With degrees of hardness are designated the parts by weight of lime (oxide of calcium) contained in 100,000 parts by weight of water. A water of 14° of hardness therefore has 140 grams. lime in 1,000 litres water. Now, this amount of lime can make 13 times that quantity, or about 13½ kilogrammes, of oleine soap inoperative. Water of more than 3° or 4° hardness is used with great loss for washing, dyeing, fulling and scouring.

MORDANTING.

By mordanting with chromate of potash a considerable quantity of lime is fixed upon the wool, it is necessary to use hard water. It is well known that a great many colours become dull and lifeless when dyed with calcareous water. The most dangerous influence of all, however, is that of lime soap, which forms a large part of the justly dreaded soap residues in yarn and woollen goods. It is very difficult to remove it, and perhaps the best, and, in fact, the only way, is to decompose the lime soap by treating the goods in highly dilute hydrochloric acid, whereby a soluble chloride of calcium and free fatty acid are formed, which is then rinsed away with soda in a second bath.

It has not been my intention to enter into a discussion as to the merits of all the wool lubricants and soaps used in the textile industry. One spinner prefers lard oil, another uses olive oil, a third oleine, and a fourth some kind of composition, etc.

Every manufacturer, however, rightly avoids the introduction of a new lubricant, which, if used, means a change in the various stages of the manufacture of the cloth. If the lubricant is clean, and complies with all demands made in the preceding remarks, it will answer its purpose perfectly. What has been said of lubricants holds good for soap. The soap should be pure, should contain no unsaponified fat or too much free alkali, and should not contain injurious or inferior substances, such as flour, water glass, chloride of potash, etc.

Wool, through all the processes of manufacture into cloth, in washing, carding, spinning, weaving, dyeing, fulling, scouring, etc., has to submit to so many mechanical and chemical treatments with the most varying agents that the object of the manufacturer to keep the wool free from all foreign bodies, except dyestuffs, can only be approximately reached. The excellent properties of the wool fibre, however, can only be preserved and show themselves in the finished cloth if the mechanical manipulations are faultless, and if the agents used, but especially the lubricants and detergents are of the best quality.

THE PROPOSED PATENT LAW AMENDMENT.

AT the last ordinary meeting of the Board of Directors of the Manchester Chamber of Commerce, the special committee appointed to consider the question of amending the present patent law, laid their report before the Board.

The report states that an amendment of the law of patents is desirable, making the following provisions:—(1) An official preliminary examination of applications for patents; (2) the compulsory working on a manufacturing scale within a fixed time of foreign inventions patented in this country; and (3) the restriction of the power to amend specifications of patents. At the suggestion of the Committee the Board agreed to confine its efforts at present to the attainment of the first of these objects, and the following resolution was passed:—"That a strong recommendation be made to the Government asking it to take early steps to bring in a bill reforming the present patent laws, so as to make them, so far as relates to preliminary examinations, analogous to the law and practice at present in force in the United States of America, and that Chambers of Commerce, the Institute of Inventors, the Chartered Institute of Patent Agents, the Society of Chemical Industry, and other kindred societies be invited to co-operate in this movement."

THE GAS SUPPLY OF LONDON.

THE quality of the gas supply to the city of London for the week ending December 17th, 1892, was not so good as usual. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed three deficiencies in illuminating power, one against the Gas Light and Coke Company, and two against the Commercial Gas Company, the deficiencies amounting to 1 and '9 candles respectively in regard to the latter company. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles)	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'33	11'93	0'23	Nil.
South Metropolitan Gas Co.	6	16'41	13'48	0'48	Nil.
Commercial Gas Co.	2	16'45	8'6	0'05	Nil.

For the week ending Dec. 24th there were seven returns for deficient illuminating power; three against the Gas Light and Coke Co., two against the South Metropolitan Gas Co., and one against the Commercial Gas Co. The results calculated as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles)	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'29	11'94	0'25	Nil.
South Metropolitan Gas Co.	6	16'35	11'51	0'45	Nil.
Commercial Gas Co.	2	16'35	8'45	Nil.	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

THE LONDON CHAMBER OF ARBITRATION.

PUBLIC sentiment would appear to be steadily growing in favour of commercial arbitration, and if the number of submissions already entered is any criterion the London Chamber of Arbitration is likely to be well patronised. The system of arbitration is by no means new as far as the City of London is concerned. As far back as the Saxon period, says *The Financial Times*, there were Piepoudre courts for settling questions between buyers and sellers at Bartholomew Fair and other markets, and during the fifth century Aldermen acted as arbitrators in disputes to which German merchants were parties. At that time it is probable these methods of settling disputes partook more of the character of a simple and expeditious court of justice than what is now understood by an arbitration. Still it is not likely that the disputants objected to this; the matter was decided on the spot, and the delays and expenses of litigation were avoided.

With the growth of commerce during the present century, and the corresponding increase in disputes, the public were led to seek a quicker and less expensive method than in legal proceedings, and the Chamber of Arbitration was suggested. The proposal met with unusual favour, and the new institution has now become an established fact. The system of commercial arbitration has been in existence for some years on the Continent, and also in the United States. In Paris and other large trade centres in France, Tribunals of Commerce as they are called are regulated by the Code du Commerce and are compulsory, but in most other countries the submission is entirely optional. The London Chamber is necessarily of the latter kind, as the law only sanctions compulsory attendance before a court presided over by a judge of the High Court or County Court. Strictly speaking, the Chamber will have no further judicial authority than is conferred on ordinary arbitrators by law, its chief advantages being the saving effected in time and money, and that the questions in dispute can be decided by persons who are practically experts in the matter.

The framers of the procedure have wisely made rules as simple as possible, while the fees are as low as is consistent with due regard to efficiency.

The arbitrators are British subjects, especially qualified by experience or special trade knowledge, and include representatives of almost every

business and calling in London. All questions can, therefore, be adjudicated by experts, a feature which certainly should be appreciated by business men.

A large number of submissions for arbitration have been made to the Chamber which is now in session, one of them involving no less than £40,000. Other large commercial centres are also falling into line; Manchester, Liverpool, Nottingham, Leeds, Birmingham, Sheffield, Barnsley, and Dublin are already taking steps to establish similar chambers, and it has been suggested that by the affiliation of these chambers so that an interchange of arbitrators might be effected, the results would be very advantageous. For example, the headquarters of the American canning trade are at Liverpool, and it is obvious that the presence of a Liverpool expert would be highly desirable at a London arbitration in regard to this particular branch of commerce, while the attendance of a London arbitrator at Liverpool or other places might be equally beneficial. The desire of affiliating with the London Chamber has extended to Foreign Commercial Tribunals, and several applications to that effect have been received by the Registrar, but it is doubtful if the idea be feasible. At present it is impossible to say how far such affiliation may be practicable, as much careful consideration is needed before any decision can be arrived at by the Chamber.

Foreign Trade Returns.

THE following is a monthly review of the export and import trade of foreign countries in chemical and allied products such as are produced in the United Kingdom. The actual amount exported by, and imported into Great Britain being specified where possible.

GERMANY.

During the year 1890-91, there were 91 salt works in operation in Germany, from which there were extracted 10,613,206 quintals of salt; the production of the 92 works operating in 1889-90 having been 10,054,324 quintals. The exports are returned as below in quintals:—

To German Countries not in the Customs		1890-91.
Union	94,916	
Belgium	225,384	
Denmark	60,907	
England	129,163	
Holland	240,297	
Austria-Hungary	222,233	
Russia	122,794	
Sweden	103,239	
British India	576,064	
Australia	58,595	
Other Countries	132,280	

Total exports 1,965,872

Imports in 1890-91 attained to only 26,499 quintals, of which 23,228 were derived from England, and 1,466 from Portugal.

AUSTRIA-HUNGARY.

The following are the returns of the *Statistik Übersicht* for the first nine months of 1892 (January to September). In the undermentioned imports every item, with the exception of "chemical substances," shows an increase, while in the exports, gums and resins, minerals and chemical substances, show an increase as compared with the same period in 1891. The total imports and exports, as compared with the corresponding period of last year, show a decrease in both cases.

Class.	Imports. Metric Centners.	Exports. Metric Centners.
Seed oil, etc.	225,570	3,695
Minerals	3,169,585	5,685,883
Dye and tanning stuffs	337,813	513,990
Gums and resins	279,802	124,909
Minerals, oils, etc.	1,069,808	16,837
Chemical substances	536,720	215,888
Chemical products	53,007	65,331

A metric centner is about 94 lbs. avoirdupois.

ITALY.

The following are the returns for the first ten months of 1892, January to October:—

Class.	Imports. Lire.	Exports. Lire.
Chemicals, medicines, etc.	36,123,010	33,676,525
Colours, paints, and dyes	20,583,538	8,185,843
Minerals and metals	97,418,819	34,560,412

A lire is equivalent to 9d.

In the imports minerals and metals show a decrease, the other two items showing an increase as compared with the same period in 1891. In the exports there is an increase all round as compared with the same period. In regard to the total imports and exports, there has been an increase in both cases.

INDIA.

The following is a *résumé* of the official returns published by order of the Governor-General in Council, and represents the imports of foreign merchandise into India, and the exports of Indian manufacture and produce, for the month of August, 1892 :—

Imports.

Class.	Quantities.
Salt	tons 41,908
Quicksilver	lbs. 20,325
Alum	cwts. 7,700
Arsenic	cwts. 130
Bicarbonate of soda	cwts. 1,790
Chemicals for paper making	value (Rupees) 52,152
Sulphur	cwts. 1,923
Quinine	lbs. 1,923
Aniline and alizarine dyes	oz. 7,926,624
Mineral oils	galls. 2,887,403
Linseed oils	galls. 18,456
Gums and resins	cwts. 9,288
Manures	tons 4
Pitch, tar and dammer	cwts. 10,201
Dynamite and other explosives	cwts. nil.
Cement	cwts. 40,979
Candles	lbs. 507,518
Paints and colours	cwts. 13,581
Soap, all kinds	cwts. 4,751

Exports.

Class.	Quantities.
Cinchona bark	lbs. 57,247
Cutch	cwts. 7,713
Indigo	cwts. 3,181
Myrabolams	cwts. 34,574
Turmeric	cwts. 5,752
Castor oil	galls. 182,712
Cocoonut oil	galls. 73,293
Borax	cwts. 433
Caoutchouc	cwts. 219
Mica	cwts. 266
Saltpetre	cwts. 19,464
Shellac	cwts. 2,678
Oil cake	cwts. 35,278
Soap	cwts. 619

In the above mentioned, out of the sum total for each item, the following quantities were either shipped from, or sent to the United Kingdom :—

Imports of salt, 28,887 tons were imported from the United Kingdom, and 5,217 from Germany. Of quicksilver, 10,950 lbs. are sent from the United Kingdom. Gums and resins : of the 9,288 cwts. of gums and resins, 6,696 were resin. Of paints and colours, 12,067 cwts. were sent from the United Kingdom.

N.B.—All petroleum which has its flashing point at, or above 202° F., and is proved to the satisfaction of the Customs Collector to be intended to be used for the batching of jute or other fibre, or for lubricating purposes is free of duty.

Exports of cutch, 1,446 cwts. were sent to the United Kingdom ; of indigo, 2,772 cwts. ; myrabolams, 24,669 cwts. ; turmeric, 2,270 cwts. ; castor oil, 53,046 galls. ; cocoonut oil, nil ; caoutchouc, 195 cwts. ; of saltpetre, 11,397 cwts. were sent the United Kingdom, and 2,800 cwts. to the United States, America ; of shellac, 1,311 cwts. were sent to the United Kingdom, to France, 12 cwts. to the United States, America, 609 cwts., and 746 cwts. to other countries.

The total value of the imports for August, 1892, as compared with the same month in 1891, show an increase, while the exports have decreased. For the five months, April to August, 1892, as compared with that period in 1891, there has been a decrease in both exports and imports.

AMMONIA GAS AS A MOTIVE POWER.—One of the street railway companies of New York are to try ammonia gas for a motive power. Possibly the enterprising company will use the same gas to refrigerate their cars in summer if they continue to use their new motive power till then.

EXPORTS OF PETROLEUM FROM U.S.A

THE chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of November, 1892, and during the 11 months ending November 30th, as follows :—The total value of the shipments for November were £782,110., as against £701,313., in November, 1891 ; and for the 11 months ending November 30th, 1892, £7,728,924., as opposed to £8,294,827. in 1891. The shipments were as follows :—

CRUDE PETROLEUM.

	Gallons.
Total for November, 1892	9,034,866
Total for November, 1891	9,537,607
Total for 11 months ending November 30th, 1892	91,559,805
Total for 11 months ending November 30th, 1891	83,384,325

NAPHTHAS.

Total for November, 1892	2,432,331
Total for November, 1891	639,584
Total for 11 months ending November 30th, 1892	15,434,693
Total for 11 months ending November 30th, 1891	9,530,872

ILLUMINATING.

Total for November, 1892	57,737,018
Total for November, 1891	43,100,059
Total for 11 months ending November 30th, 1892	533,116,807
Total for 11 months ending November 30th, 1891	481,776,471

LUBRICATING.

Total for November, 1892	2,793,244
Total for November, 1891	2,634,564
Total for 11 months ending November 30th, 1892	30,959,480
Total for 11 months ending November 30th, 1891	29,591,261

RESIDUUM.

Total for November, 1892	18,144
Total for November, 1891	1,344
Total for 11 months ending November 30th, 1892	258,048
Total for 11 months ending November 30th, 1891	917,236

THE MANURIAL VALUE OF WASTE HOPS.

By G. DE MARNEFFE.

ENORMOUS quantities of spent hops are thrown to waste every year from breweries. In Germany no attempt is made to utilize this waste product. The quantity which is thrown to waste is so great that the author at the instigation of Dr. Peterman, Director of the State Agricultural Station at Gembloux, has made an analysis of the waste hops to ascertain their likely value for fertilising purposes. From his analyses he obtained the following results :—

Water	82.73
Fatty matters	1.74
Albuminoid matter	5.44
Extractive matters (not nitrogenous)	7.21
Cellulose	2.25
Mineral matters	0.63

Total 100.00

The mineral residue left after the incineration of the waste hops had the following composition :—

Carbon	0.73
Sand	21.06
Lime	25.65
Magnesia	5.80
Potash	3.67
Soda	3.07
Oxide of iron and aluminium	4.70
Sulphuric acid	5.27
Carbonic acid	1.02
Phosphoric	24.19
Silica	4.84
Chlorine	traces

100.00

The value as a manure of the hops is evidently, from the foregoing analyses, by no means so insignificant as is generally supposed, since from this analysis we learn that 1,000 kilos. of the waste hops would contain the following :—

Nitrogen.....	8.70 kilos.
Potash	0.23 „
Lime	1.62 „
Magnesia	0.37 „
Phosphoric acid.....	1.52 „

Making allowance for the slow decomposition which takes place in the waste hops their value per 1,000 kilos. is about 7s. 6d. They may be utilised in the same way that straw is used in the culture of strawberries, being suitable for preserving the fruits in a perfectly clean state and protecting it from insects and slugs.

Its use for the preparation of a compost is best performed by adopting the following proportions:—40 kilogrammes of the waste hops are mixed with 10 kilos. of kainit, 10 kilos. of basic slag and 40 kilos. of a light soil. A thin layer of earth should be spread over the top of the heap, and kept moist with water in order to retain any ammonia which may be given off during the fermentation of the hops.

The best use, however, to which these waste hops can be put is their use as feeding stuffs. The exhausted hops when protected from sweating and moisture, form a forage possessing hygienic and tonic properties, and mixed with other feeding stuffs is readily taken by live stock. 1,000 kilos. contain:—

Albumen	54.4 kilos.
Fatty matters.....	17.4 „
Carbo-hydrates	72.1 „

They should be mixed with the other diet in about proportion of 2 kilos. to 1,000 kilos., and so little by little accustom the animals to the new forage.

Correspondence.

* * * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

A.S. (Germany).—Thanks for your letter, the change has been duly notified.

J.V. (Paris).—We regret the occurrence, but it is quite inexplicable.

M.S.R.J.—We are obliged to you for calling our attention to the matter.

E.S.—They will be sent in due course.

B.F. Co.—Yes. So far it gives satisfaction.

P.D.C. and Co.—1 1/2 cts. bags, at makers' works for spot deliveries and lower quotations for forward.

Trade Notes.

SALFORD AND CHEAP ANALYSES.—We have already touched upon the action of the Somerset House officials in this matter, and our contemporary, "*Foods, Drugs, and Drink*," has published the following details, concerning which we were considerably silent. The Salford Corporation were until a few months ago accustomed to have sewage effluents analysed by Manchester and local chemists. The local analytical chemists paying rent for their laboratories and using chemicals and utensils, the cost of which came out of their own pockets, charged the sum of three guineas for an analysis of each effluent. Learning somehow that Somerset House chemists were in the habit of doing private work, the Corporation of Salford sent some effluents to Somerset House, which the officials there analysed, and charged for at the rate of only one guinea each. As a natural result of this "sweating" the Manchester chemists have received no further samples.

Obituary.—We regret to announce the death of Mr. J. P. Brunner, a member of the firm of Messrs. Brunner, Mond and Co., the well-known chemical manufacturers. The deceased gentleman, who was in his 49th year, was a Magistrate of Liverpool.

SOCIETY OF CHEMICAL INDUSTRY: LIVERPOOL SECTION.—The next meeting of this section, will be held on Wednesday, January 11th, at 7 p.m., when a paper will be read by Messrs. C. A. Kohn and A. F. Fryer, on "The Cause of the Red Colouration of Phenol."

ENGLISH COAL PREFERRED.—The new experiments which have been made with German coals for use in the Italian Navy have been concluded. The German coals have been judged much inferior to the English, and the Government have consequently decided to continue the use of English coal for their navy.

SOCIETY OF CHEMICAL INDUSTRY. London Section.—The first meeting of the 1893 session of this society will be held at Burlington House, on January 9th, at 8 p.m., when papers will be read on (1) "Qualitative Analysis of Colouring Matters." (2) "The Proportion of

Free Fatty Acids in Oil Cakes." (3) "Further Notes on Nitrous Oxide," by Mr. Watson Smith.

RATING OF BLAST FURNACES.—The appeal to Quarter Sessions of the Dowlais Iron Company against the assessment of their new furnaces at Cardiff will now be withdrawn. On Thursday a conference of the Assessment Committee, with Mr. E. P. Martin, the company's manager, and Mr. Humphreys-Davies, of London, the valuer advising the company, resulted after a long discussion in a compromise, by which the new assessment is reduced by about 50 per cent.

NATURE'S CHEMICAL WORKS.—An interesting reaction is said to take place at the Kainit mines of Kaluz, Galicia. Glauber's salt has been found there, but as none of the superincumbent strata contain that salt, but only sodium chloride, it was supposed that the Glauber's salt had been formed by the action of rain water percolating through the upper strata, where it dissolved sodium chloride, and then penetrating to the kainit layer, where the sodium sulphate is formed by the reaction between sodium chloride and the potassium sulphate of the kainit. This view was confirmed by a laboratory experiment.

A WONDERFUL STEAMBOAT.—We have read a good deal about the wonderful revolution the use of aluminium would make in the performances of our Atlantic Liners, but all the aluminium in the world will not enable us to compete with such a steamboat as an American newspaper recently described; for according to that authority this vessel, when loaded, will draw less than a foot of water. In case the river becomes perfectly dry, she will run on a heavy dew or by the aid of a wet sponge secured to her bottom. After this it almost seems a pity we ever began the Ship Canal.

AN OBJECTION TO GLASS WOOL IN THE LABORATORY.—In the course of gas-analysis operations, M. Blum caused gases containing sulphuretted hydrogen to traverse a plug of fine white glass wool, as obtained in commerce. The wool was blackened, and on further investigation it appeared that the blackening was due to the formation of lead sulphide. Hence a plumbiferous glass had been used for the production of the glass wool. In various analytical operations where glass wool is used the presence of lead is objectionable. Nor can such material be used, as recommended, for filtering acids, since they may become contaminated by taking up lead.

A MONSTER VAT.—The Lancashire Vinegar Company, Radcliffe, have recently had fixed for them by Messrs. Henry Roberts and Co., Mile-End-road, London, one of three large vats for the storage of malt vinegar. In circumference it is 50ft. 3in., at the base the diameter is 16ft., and at the head 14ft. 5in.; the staves are 16ft. 3 1/2 in. in length, and the iron hoops which encircle it measure 940ft. It is made of English oak, and the weight of timber is about five tons. The storage capacity is 20,000 gallons, which will weigh nearly ninety tons. A few days ago a party was held in it, the accommodation being sufficient for twenty-four persons.

PERSONAL.—We are pleased to learn that Mr. Alfred Schott, member of the late firm of Messrs. Schott and Segner, Manchester, has been appointed one of the directors of the Deutsche Gold and Silver Scheide-Anstalt. The works of this company are at Frankfurt-on-Maine, Germany. Sir John Bennet Lawes, who has just been celebrating his golden wedding at Rothamsted, Herts, where he was born 78 years ago, is, perhaps, our greatest living agricultural chemist. He succeeded to his father's estate when a child, and for many years Rothamsted has been famous for its splendid crops and its continuous wheat-growing. Many years ago he established extensive works in London for the production of superphosphate of lime and other manures. Sir John, as a successful scientific agriculturist, has been the recipient of many honours both at home and abroad. The International Okonite Company has appointed Mr. J. A. Jeckell to be manager of the works at Newton Heath, Manchester.

THE MANUFACTURE OF CHLORINE.—For some months the Austrian Ammonia Soda-Fabrik, at Szczakowa, has been producing chlorine from the waste liquors of the ammonia soda process by Schaffner's process. The liquors which contain calcium chloride and undecomposed salt are economically evaporated and the two salts separated. The recovered salt more than compensates for the outlay in fuel, and the concentrated calcium chloride is then heated with carbonic acid and magnesia by Schaffner's process, yielding magnesium chloride and calcium carbonate. The chlorine is obtained from the magnesium chloride so produced by the Weldon-Pechiney process, and the recovered magnesia is utilised for decomposing a fresh quantity of calcium chloride liquor. At present the chlorine manufactured in this way is being used for the preparation of potassium chlorate, but shortly it is intended to make other chlorine products. The Weldon-Pechiney plant is constructed for a daily output of 400 kilogrammes of potassium chlorate, and there appears to be no reason for regarding the process as, at any rate, a commercial method for the manufacture of chlorine compounds in connection with this process.

AN ECCENTRIC SCIENTIST.—One of the former residents in Gower-street, London, was the Hon. Henry Cavendish, mathematician, astronomer, geologist, chemist, recluse, and—eccentric. Mr. Cavendish

was intensely shy. He had quite a diseased aversion to all, and especially to female, society. The only way to get him to speak was never to look at him; talk as it were into a vacancy, then it was not unlikely that he might be set going. Nevertheless, men were a trouble to him, and women an intolerable nuisance. He avoided communication with his female housekeeper by depositing notes on the hall table. A female servant he would never see. If an unlucky maid showed herself, she was instantly dismissed. In his villa at Clapham he had a second staircase built, so that he might prevent the almost inevitable encounters with the hated sex. Whenever Mr. Cavendish entertained his guests he would always give them the same fare—a leg of mutton. A story goes that one day when four friends were coming, it was asked him what should be ordered for dinner. He answered, "A leg of mutton." "Sir," was the reply, "that will not be enough for five." "Well, then, get two," said the host. When this gentleman died he was the largest holder of bank stock in England. He owned £1,570,000. in different public funds, besides freehold property of £8,000. a year, and a balance of £50,000. on account. This large income was allowed to accumulate without attention. On one occasion, when the bankers had in hand a balance of £80,000., they thought it well to acquaint Mr. Cavendish with the fact. "If it is any trouble to you I will take it out of your hands; do not come here to plague me." "Not the least trouble to us, sir; but we thought you might like some of it to be invested." "Well, what do you want to do?" "Perhaps you would like half of it invested?" "Do so, do so, and do not come here to bother me, or I'll remove it," was the churlish finale to the interview.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol is now much firmer. Owing to the holidays our information concerning prices last week came to hand too late for publication, otherwise we should have reported 1s. 9d. to 1s. 10d. for 90s. To-day the market value is higher, and 2s. 1d. to 2s. 2d. may be considered about the figure, while carbolic acid, anthracene and pitch are much strengthened by the action of the syndicate, which now practically controls all tar products.

The sulphate of ammonia market continues firm, the agent of the Gas Light and Coke Co. having sold at £10. 2s. 6d. per ton for forward delivery. London outside makes are worth £10. 1s. 3d., though there is not much offering. Business has been done, f.o.b. Hull, at £10. per ton for prompt delivery, and the same price has been paid at Leith for prompt delivery.

REPORT ON MANURE MATERIAL.

During the week the market has been quiet, and prices have not materially varied from those last reported.

Sellers of 75/80% Florida phosphate rock seem somewhat firmer, and less inclined to sell far ahead. There are still sellers of 8d. per unit, in cargoes c.i.f. to United Kingdom for prompt or early shipment, but this is rather above buyers' ideas, and 7½d. is probably nearest value. Hot-air dried South Carolina rock offers at 6½d. per unit in cargoes for shipment, and 6¾d. would probably be business for Peace River. River Plate bone ash continues to be difficult to sell, and £2 17s. 6d. per ton on 70% nett Hamburg terms, would hardly be obtainable.

There are sellers of River Plate cargoes of bones at £4. 2s. 6d., delivered United Kingdom, but the price is hardly obtainable. Crushed Kurrachee bones offer rather freely at £4 per ton, and something less than this has been taken delivered ex quay Liverpool, ordinary quality of crushed Bombays would hardly fetch over £3. 15s. Bombay bone meal has been selling on spot at £4 per ton, ex quay, but for shipment £4. 2s. 6d. is required. Charring bones continue to be in request at Liverpool, and £4. 7s. 6d. for good clean, dry bones would readily be obtainable.

Nitrate of soda is still quiet in all positions, but prices are steady. On spot 8s. 10½d. is lowest for inferior test, and 9s. to 9s. 1½d. for good to refined quality. Due cargoes are worth about 8s. 11¼d. for ordinary test. September shipments may be quoted at about 9s. 1½d., and October-November at 9s. 3d., and December 9s. 1½d. per cwt. according to size and test.

The better demand for fine home prepared dried blood, for export, continues, and for high test, in double bags, f.o.b. Liverpool, 9s. 9d. per unit would have to be paid. The position of ordinary quality remains without much alteration.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is firm with a tendency to advance, there having been a good enquiry for Lagos at £24., Old Calabar £23. 5s., soft oils £22. all transit. Olive has experienced a better demand, and prices are firm at £35. to £42. per tun. Linseed still remains at 19s. 6d. to 20s. per cwt. in export casks, with a moderate enquiry. Cottonseed: Liverpool refined has fluctuated somewhat during the week, but to-day is much firmer, 20s. per cwt. now being lowest price. Castor oil is steady on the whole, good seconds Calcutta is a shade easier at 23½, first pressure French is very firm at 2½d. Tallow is firm with very little offering, there having been a moderate business passing. Resin common is quoted 3s. 9d. at which it is very firm, other grades quiet. Spirits of Turpentine are firmly held at 22s. 6d. to 22s. 9d. with a fair business doing. Petroleum steady, American 5¼ to 6¼, Russian refined 4½ to 4¾.

COLOURS.—No change to report. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 55s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

MISCELLANEOUS CHEMICAL MARKET.

The tendency in direction of lower prices for alkali is further evidenced by a reduction in the past week for spot deliveries of caustic soda to the extent of 5s. per ton, which brings it into closer correspondence with the unit value of carbonated soda. The spot prices now, therefore, stand as follows, viz.:—For 10 ton lots and upwards, f.o.b. Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream 60%, £8. 5. per ton. For contracts over the year a slight inducement is given to buyers. This reduction in value of caustic soda is, no doubt, a wise thing, inasmuch as the consumption has been checked of late by its relatively higher cost in comparison with soda ash. Bleaching powder is firmly maintained at £7. 10s. for spot delivery and £7. 5s. for forward. Chlorate of potash and soda are likewise firm and in good demand, and both are in short supply. Recovered sulphur is steady at £4. 10s. to £4. 12s. 6d., f.o.r. Soda crystals are without change. Soda ash of Leblanc make remains at 1¼d. to 1½d. per degree, f.o.b. Ammonia alkali, 58%, in bags, at makers' works, is still subject to some fluctuation according to quantity and period of delivery, nearest quotation being 1½d. per degree for early delivery. Acetates of lime are somewhat quiet, consumers being well covered for their requirements. White powdered arsenic remains steady at £12. 10s., nett, f.o.r., Garston. Acetates of lead, soda, and acetic acids remain at prices which have been ruling for some time past, and there appears no prospect of an immediate change. Carbolic acid crystals have further advanced, 7¼ to 7½d. per lb. being nearest spot values, f.o.b. Potash, caustic and carbonate still continue in good request and prices are firmly maintained. Sulphate of copper continues on an even course, price nominal at £16., f.o.b. Yellow prussiate of potash, 9½d. to 9¼d. per lb. Oxalic acid, 3d. to 3¼d. Chloride of zinc selling at easier rates in consequence of smaller demand. In the home trade the demand for general chemicals is still unsatisfactory.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at 41s. 8½d. cash. Middlesbrough 36s. cash, and Hematite 45s. 9d. cash. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £46. 11s. 3d. cash, and £47. to £47. 7s. 6d., three months. Tin firmer. Straits closed at £91. 12s. 6d. to £92. 2s. 6d. cash, and £91. 7s. 6d. to £91. 17s. 6d. three months. Australian, £92. 7s. 6d. cash. English ingots, £95. Lead quiet: Spanish, £9. 17s. 6d. to £10. English £10. 2s. 6d. to £10. 5s. Silesian spelter: Ordinary, £18. 5s. Quicksilver: First hands, £6. 5s., second hands, £6. 4s. Copper shares quiet; Cape, 1½ to 1¾. Copiapo, 2¼ to 2½. Libiola 3½ to 3¾. Mason and Barry, 2¾ to 2½; Rio Tinto, 15½ to 15¾; Tharsis, 4½ to 4¾; Namaqua, ¾ to ¾; Panulcillo ¾ to ¾. WOLVERHAMPTON, WEDNESDAY.—Marked bar makers confirmed the announcement to-day of 10s. reduction in this iron. The

new price for marked bars, namely £7. 10s., is within 10s. of the lowest price touched for twenty years. The highest price registered during that time was £16. Merchant and common iron is easier by half a crown per ton. No larger reduction is possible owing to the very low level to which prices have already got. Pig prices easy, but buying mostly postponed until the quarterly meetings next week. Derbyshires, 44s.; Northampton, 43s.; Staffordshire best 60s.

GLASGOW, WEDNESDAY.—Market steady, with small business. Scotch done at 41s. 9d. cash, also at 41s. 10½d. one month; closing with buyers at 41s. 8½d. cash, and 41s. 10½d. one month, sellers ask ½d. more. Middlesbrough closes with buyers at 36s. cash, sellers ask 36s. 6d. Hematite done at 46s. 10½d. cash; closing with buyers at 45s. 9d. cash, sellers ask 46s.

THE LIVERPOOL MINERAL MARKET.

The mineral market is steady. Manganese: Prices advancing, with a strong demand. Borate, 7½d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump): Good demand; raw raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Great demand for time of year, and prices firm; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals small; large orders are being booked for the new year at advanced figures. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone: Good demand, and prices are firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. 10s. to £5. 10s. Fullers' earth continues quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal continue to be much sought after, and prices are unaltered. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Works closed generally on Friday last, and most of them remain so still. It has been holiday time also in business places and on the Exchanges, so that the market for the time is thoroughly ungeared. With the exception of bleaching powder, which is still very firm, there is nothing like stiffness in any of the chemical products of this quarter, and the most part of them are weak, soda crystals being lower. Bichromate of potash and bichromate of soda, the British production of which is almost entirely confined to the West of Scotland, has long been rather inactive, but the agreement prices (as below) are maintained, although there are rumours of new works starting for the purpose of fighting the present combination of makers.

Mineral oil for burning is still in very strong request, the present being the height of its season, but the other products of this section need spurring up badly; prices continue unremunerative, and the market is keen cut.

There is very little change in the condition of sulphate of ammonia, but possibly there has been some trifling recovery.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 32s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% any port; nitrate of soda, 8s. 10½d. to 9s.; sulphate of ammonia,

£10. to £10. 1s. 3d. f.o.b. Leith; salammioniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¾d., and soft 1¾d. per lb.; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5½d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 25,005 bags.

TYNE CHEMICAL REPORT.

TUESDAY.

Owing to holidays there has been very little doing, during the last week, the only transactions being for delivery over 1893. Bleach till scarce and commands fully £7. 15s. f.o.b. net; sulphur, quiet at £4 12s. 6d. net

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. 5s. per ton, 70%, £10. per ton; recovered sulphur, 2 cwt bags, £4 12s. 6d. per ton; soda ash, 48%, £5 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52%, £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, 50%, £6. 15s. 6d. per ton, 52%, £7. per ton, 100° Tw., £4. per ton, 140° Tw., £4. 7s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, in casks, £4. 15s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton; aluminate of soda, £33. 15s. per ton; hydrate of barium, £10. per ton.

South Durham salt unaltered at 10s. 1d. per ton f.o.b. Tees.

Coals: Trade is quiet, with prices unaltered. Gas coals continue in strong demand, other qualities of coal dull, with very little doing. Coke, steady, at about 15s. per ton f.o.b.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated January 4th, 1893, state:—

Chili charters for second half of December are advised as 1,500 tons. Exchange 17¼d.

The following figures show the comparison of the total charters during the last six years:—

1892.	1891.	1890.	1889.	1888.	1887.
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
22,550	20,500	25,600	23,500	30,000	30,100

Since our last report, dated 17th December, 1892, there has been nothing of particular interest regarding our copper market, and the total sales of G.M.B.'s and G.O.B.'s have not exceeded 5,000 tons. Values have declined about 5s. per ton. Both stocks and the visible supply have increased, as will be seen by the figures we give below. The holidays have of course interfered with business, and we close today with buyers at £46. 11s. 3d. cash, and £47. three months. Furnace material commands high prices.

The total stocks in Liverpool, Swansea, London, and Havre shew an increase of 949 tons for the fortnight, but with a decrease of 104 tons for the previous fortnight, makes the total increase of 845 tons for the month. The stocks include about 5,400 tons of copper sold, but not yet delivered to smelters.

The visible supply shows an increase of 1,749 tons for the fortnight, which, with an increase of 443 tons for the previous fortnight, makes a total increase of 2,192 tons for the month. The total deliveries for the fortnight are 4,562 tons, which, with 4,626 tons for the previous fortnight, makes a total of 9,188 tons for the month. The present stock of English G.M.B.'s in warehouse, Liverpool and Swansea, is 1,667 tons, against 1,720 tons on the 16th ult. The delivery in Liverpool and Swansea was 53 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts are steady. Quotations being:—Tough cake £50 to £50. 10s., best select £51. 10s. to £52., Indian Sheets £54 to £55., strong sheets £60., and yellow metal sheets 5d to 5½d per lb.

The sales of furnace material comprise—100 tons auriferous and argentiferous American matte and 150 tons argentiferous Montana matte, on private terms; 1,330 tons Cape regulus (for Swansea), at 9s. 6d. to 9s. 4½d.; 40 tons Spanish precipitate, at 9s. 6d.; 25 tons Spanish ore, at 8s. 3d. to 8s. 6d.; 500 tons Portuguese ore, to arrive, at 8s. 6d. to 8s. 9d.; and 200 tons Norwegian ore, to arrive (Swansea), at 9s. 7½d. per unit.

New Companies.

Lamps Belge Stove and Oil Co., Ltd.—CAPITAL £3,000. in £1. shares to trade as wholesale and retail dealers in lamps, stoves, etc.

Dudley-road Brick and Tile Co., Ltd.—CAPITAL £4,000 in £5. shares. This company has been formed to acquire and lease the property at Ettingshall, near Wolverhampton, and to trade as the above.

Bruce and Still, Ltd.—CAPITAL £10,000. in £1. shares, to carry on the business of galvanizers, and corrugated iron manufacturers, etc. The subscribers to the memorandum of association are:—W. T. C. Bruce, Liverpool, galvanized iron manufacturer; A. Still, Liverpool, galvanized iron manufacturer; W. Waters, Oxtun, hide manufacturer; E. L. Bruce, Liverpool, estate broker; W. E. Fermor, Liverpool, cashier; A. N. Edwards, Birkenhead, book-keeper; H. C. West, Liverpool, insurance broker.

John Lee Walker and Sons, Ltd.—CAPITAL £15,000. in £10. shares. The object of this company is to acquire and take over as a going concern the business of cloth fullers, dyers, water-proofers and finishers, formerly carried on by Messrs. J. Lee Walker, and A. Walker, at Deighton, Yorkshire. The subscribers to the memorandum of association are:—J. L. Walker, Deighton, dyer and finisher; E. Walker, Deighton, married woman; A. Walker, Deighton, dyer, etc.; W. Armitage, Deighton, dyer; T. Walker, Deighton, finisher; D. Walker, Deighton, finisher; F. Dyson, Huddersfield, book-keeper.

Llandyry Anthracite Colliery Co., Ltd.—CAPITAL £10,000. in £1. shares. The object of this company is to purchase and work certain seams of coal and other minerals in the parish of Pembrey, Carmarthenshire. The subscribers to the memorandum of association are:—J. S. Palmer Samborne, Bath, M.E.; S. S. P. Samborne, Bath, gentleman; R. L. Scarlett, Winchester, late; R. A., major; F. A. Short, Exeter, gentleman; W. J. Battishill, Grater, solr.; R. Pople, Exeter, hotel-keeper; G. Redford, Kidwelly, Carmarthenshire, brick manufacturer.

Gazette Notices.

PARTNERSHIP DISSOLVED.

T. TAYLOR AND F. W. TAYLOR, under the style of F. and F. J. Taylor, Newport Pagnell, chemists and druggists.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

HERBERT, MARTYN CARTHEW, Belsize Park, Hampstead, late Horseferry-road Limehouse, director of limited companies, late soda manufacturer.

Adjudication.

HERBERT, MARTYN CARTHEW, Belsize Park, Hampstead, late Horseferry-road, Limehouse, director of limited companies, late soda manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 24th.

Acetic Acid—

Holland, 157 pkgs. A. & M. Zimmermann

Ammonium Carbonate—

France, 1 pkg. S. F. Waters & Co.

Antimony—

Turkey, 80 t. J. Bamher

Australia, 3 Welch, Perrin, & Co.

Italy, 12 Major & Field

Italy, 60 Novelli & Co.

Asbestos—

France, 662 Mory & Co.

U. States, 784 W. Byford

Italy, 220 L. & I. D. Jt. Co.

Cuba, 21 Melchers, Runge, & Co.

U. States, 1,350 S. Taylor

Barytes—

Belgium, 63 cks. N. J. Fenner & Co.

" 84 W. Harrison & Co.

Holland, 12 Beresford & Co.

" 23 Union L. Co., Ltd.

" 40 W. Fenton

Germany, 44 Blundell, Spence, & Co.

" 23 W. Pope & Co.

Caoutchouc—

Zanzibar, 5 c. L. & I. D. Jt. Co.

U. States, 139 Prop. Bull Wf.

" 8 Williams, Torrey, & Co., Ltd.

" 19 Anderson, Weber, & Smith

E. Indies, 62 L. & I. D. Jt. Co.

" 78 G. Ward & Sons

" 62 Jackson & Till

France, 92 Flageollet & Co.

Castor Oil—

France, 55 cks. J. T. Morton

" 20 brls. Beresford & Co.

Italy, 30 cks. R. Morrison & Co.

" 50 Baron, Harvey, & Co.

Caustic Potash—

France, 8 drs. Beresford & Co.

Caustic Soda—

Holland, 207 c. Beresford & Co.

Chemicals (otherwise undescribed)

Germany, 66 18 pkgs. L. & I. D. Jt. Co.

" 68 A. & M. Zimmermann

" 8 Burgoyne & Co.

" 40 T. H. Lee

" 27 B. & F. Wf. Co., Ltd.

" 5 C. Atkins & Nisbet

France, 8 E. W. Carling & Co.

Cream of Tartar—

Holland, 59 pkgs. Middleton & Co.

" 4 B. & F. Wf. Co., Ltd.

Spain, 13 M. Ashby, Ltd.

France, 5 Ross & Deering

" 7 J. L. Lyon & Co.

" 2

Dyestuffs—

Anthracene

France, 2 pkgs. Hernu, Peron, & Co.

Argols

France, 108 pkgs. Ross & Deering

Italy, 42 Thames S. T. & L. Co., Ltd.

Cochineal

Canaries, 55 pkgs. Swanston & Co.

" 12 Beriro & Co.

" 10 Sperling & Williams

" 30 Kuhnner & Co.

" 30 Johnson, Hicks, & Co.

" 4 Kuhnner, Henderson, & Co.

Extracts

Germany, 40 pkgs. Prop. Hay's Wf.

Belgium, 80 L. J. Levinstein & Sons

U. States, 75 W. Burton & Sons

France, 158 Carey & Sons

Italy, 100 Prop. Chamblin's Wf.

Fustic

Cuba, 34 t. Melchers, Runge, & Co.

Jamaica, 190 W. Shelcott

" 189 Anderson, Anderson, & Co.

Gambier

E. Indies, 534 pkgs. Brinkmann & Co.

" 477 Beresford & Co.

" 244 L. & I. D. Jt. Co.

" 431 S. Figgis & Co.

" 878 E. Boustead & Co.

" 2,376 Adamson, Gilfillan, & Co.

" 95 S. Barrow & Bros., Ltd.

Indigo

Holland, 11 cts. T. H. Lee

E. Indies, 23 Arbuthnot, Ewart, & Co.

" 15 Arbuthnot, Latham, & Co.

" 56 L. & I. D. Jt. Co.

" 13 E. Bower & Co.

Holland, 15 cts.

E. Indies, 35 cts. Forbes, Forbes, & Co.

" 237 Wallace Bros.

" 6 Phillipp & Graves

" 38 Darling Bros.

" 22 Elkan & Co.

" 5 Stansbury & Co.

" 19 E. Bower & Co.

" 12 Parsons & Keith

" 19 Ernsthausen & Co.

Orchella

Portugal, 90 pkgs. Prop. Bull Wf.

Aden, 8 Lewis & Peat

Saffron

Spain, 1 pkg. Price, Hickman, & Co.

Sumac

Italy, 50 pkgs. Italo-Brit. S. N. Co.

" 220 W. France & Co.

Tanners' Bark

Belgium, 21 t. Leach & Co.

Turmeric

China, 200 pkgs. Hicks, Nash, & Co.

Valonia

S. Russia, 1 t. M. D. Co.

A. Turkey, 1 Sachse & Howard

Greece, 8 J. Graves

Dyestuffs (otherwise undescribed)

France, 10 pkgs. Hernu, Peron, & Co.

Farina—

Holland, 300 pkgs. R. G. Hall & Co.

Germany, 30 J. Barber & Co.

Holland, 100 J. Knill & Co.

" 50 Ohlenschlager Bros.

" 50 Prop. Chamblin's Wf.

French Chalk—

Italy, 490 W. Harrison & Co.

Glucose—

Germany, 100 pkgs. 100 c. Hicks, Nash, & Co.

U. States, 500 500 c. A. B. Robertt. & Co.

" 400 400 Barrett, Tagant, & Co.

Germany, 10 59 R. G. Hall & Co.

" 300 300 Baxter & Hoare

Holland, 80 80 Prop. Sun Wf.

U. States, 19 95 L. & I. D. Jt. Co.

" 1,499 6,692 L. Sutro & Co.

France, 200 200 L. Norman & Co.

U. States, 100 598 R. G. Hall & Co.

" 354 1,950 Prop. Chamblin's Wf.

Germany, 17 137 J. Knill & Co.

" 90 492 Soundy & Sons

Guano—

Raine Is., 1,200 t. Anglo Contl. G. Wks.

Iodine—

France, 53 pkgs. A. Gibbs & Sons

Magnesium—

Germany, 1 pkg. Phillipp & Graves

Manure—

France, 60 t. J. Burnett & Sons

A. Turkey, 1 Prop. Bull Wf.

Germany, 31 Co-op. Lighterage Association, Ltd.

La Plata, 745 Anglo Contl. G. Wks.

Methyl Alcohol—

Germany, 10 pkgs. Elkan & Co.

Belgium, 6 Stein Bros.

Holland, 1 dm. "

Ochre—

France, 66 cks. W. Harrison & Co.

Holland, 36 pkgs. Phillipp & Graves

France, 25 cks. H. Burman

" 44 pkgs. Houlder, Bros., & Co.

" 79 brls. Magee, Taylor, & Co.

Painters' Colours—

Belgium, 16 pkgs. T. Palmer

France, 36 Flageollet & Co.

Germany, 8 cks. P. Jantzen

" 7 2 cs. L. & I. D. Jt. Co.

Holland, 4 Phillipp & Graves

Germany, 14 " "

A. Turkey, 65 R. Warner & Co., Ltd.

Germany, 9 1 T. H. Lee

France, 6 J. B. Orr & Co.

Germany, 6 C. S. Lovell

U. States, 12 Allan Bros. & Co.

" 20 L. & I. D. Jt. Co.

" 200 brls. A. Hughes

Germany, 14 14 cks. G. Steinhoff

U. States, 8 Beck & Pollitzer

Sydney, 1 Stockwell & Co.

Holland, 4 R. Baelz & Co.

France, 11 Bennett S.S. Co., Ltd.

Paraffin Wax—

U. States, 5,696 brls. J. H. Usmar & Co.

" 150 Mordaunt Bros.

" 500 H. Hill & Sons

Phosphate Rock—

Belgium, 160 t. Miller & Johnson

U. States, 1,300 Wyllie & Gordon

Plumbago—

E. Indies, 113 brls. N. S. S. Co., Ltd.

Ceylon, 103 J. Forsay

Germany, 138 cs. Prop. Scott's Wf.

" 16 cks. T. H. Lee

Ceylon, 155 J. Thredder, Sons & Co.

" 380 E. Barber & Co.

" 200 R. G. Hall & Co.

" 483 Sinclair & Co.

" 85 Prop. Sun Wf.

" 437 Phillipp & Graves

Holland, 35 B. Galloway

Potash—

France, 154 c. F. W. Berk & Co., Ltd.

Potassium Carbonate —		
France,	30 c.	J. A. Reid
Potassium Oxymuriate —		
Belgium,	80 pkgs.	G. Boor & Co.
Potassium Silicate —		
Holland,	45 pkgs.	Spies Bros. & Co.
Potassium Sulphate —		
Germany,	200 pkgs.	T. Farmer & Co.
France,	30	Weatherley, Mead, & Co.
	1,012	F. W. Berk & Co., Ltd.
Pyrites —		
Spain,	1,928 t.	C. Tennant, Sons, & Co.
Rosin —		
U. States,	930 brls.	Fairclough, Dodd, & Co.
"	2,479	Prod. Brokers Co.
Saltpetre —		
Germany,	23 cks.	Craven & Co.
"	80	Baiss Bros. & Co.
"	500 bgs.	Anglo Contl. G. Wks.
E. Indies,	1,301	Ralli Bros.
Silica —		
Germany,	£100	A. Haacke & Co.
Soda —		
Belgium,	9 cks.	Magee, Taylor & Co.
Stearine —		
France,	100 bgs.	H. Hill & Sons
"	140	Beresford & Co.
Belgium,	10 10 cks.	W. Meyerstein & Co.
Sulphur —		
Italy,	8 t.	C. J. Capes & Co.
Tallow —		
U. States,	10 cks.	L. & I. Dk. Co.
N. Russia,	2	Culverwell, Brooks, & Co.
Germany,	99	C. B. Leighton
Queensland,	62	A. Gibbs & Sons
Sydney,	100	J. Greig
"	54	Leach & Co.
"	100	J. Greig
U. States,	50	H. Hehl
Queensland,	39	Culverwell, Brooks, & Co.
"	10	Leach & Co.
"	156	Goad, Rigg, & Co.
"	145	Aust. Meat Co.
"	28	D. J. Keymer & Co.
"	15	Dyster & Nalder
"	100	Dalgety & Co.
"	213	A. B. Curtis & Co.
"	150	Philipps & Graves
Tartaric Acid —		
Holland,	4 pkgs.	F. C. Devon & Co.
"	6	G. Boor & Co.
"	6	B. & F. Wf. Co., Ltd.
"	13	Middleton & Co.
"	4	C. Christopherson & Co.
Ultramarine —		
Germany,	3 pkgs.	H. Brooks & Co.
Belgium,	6	W. Harrison & Co.
Holland,	33	Hernu, Peron, & Co.
Germany,	35	G. Steinhoff
Holland,	12 cs.	Haefner, Hilpert, & Co.
"	20 cks	Thames S. T. & L. Co., Ltd.
Germany,	6	H. Lambert
Varnish —		
France,	12 pkgs.	Flageollet & Co.
U. States,	4	Randall Bros.
"	3	Williams, Torrey, & Co.
"	14	Beck & Pollitzer
Verdigris —		
France,	2 pkgs.	B. & F. Wf. Co., Ltd.
White Lead —		
France,	10 cks.	J. Watt & Son
"	47	W. Harrison & Co.
Holland,	18	S. H. Willoughby
"	21	Burrell & Co.
"	64	W. Fenton
"	28	Colthurst & Harding
Zinc Oxide —		
Germany,	310 brls.	M. Ashby, Ltd.

LIVERPOOL.

Week ending December 22nd.

Acetic Acid — Rotterdam, 10 btl.	
Acid — Leghorn, 20 cks.	
Ammonia — Havre, 1 pkg. Cunard S.S. Co., Ltd.	

Barytes — Antwerp, 11 cks.	
Benzol — Rotterdam, 7 cs.	
Boracic Acid — Leghorn, 10 cks.	
Borax — Hamburg, 1 ck.	
Castor Oil — Calcutta, 2,502 cs. Ralli Bros. Leghorn, 10	
Chemicals (otherwise undescribed) Rotterdam, 4 cks. Sachse & Klemm	
	3
Colours — Rotterdam, 13 cks. 10 cs. Antwerp, 2 brls.	
	17 10 J. T. Fletcher & Co.
Cottonseed Oil — New York, 2 brls. M. Bell	
	25
Cream of Tartar — In transit, 4 pps. Barcelona, 2 cks. Rotterdam, 5	
Dyestuffs — Argols Bordeaux, 375 bgs.	
Divi Divi Hamburg, 144 bgs.	
Extracts New York, 25 kgs. A. J. White, Ltd.	
Baltimore, 50 brls. Houston & Laurish	
Bordeaux, 90 cks.	
Philadelphia, 25	
Fustic Colon, 349 ps. A. Dobell & Co.	
Indigo Calcutta, 126 chts. Karachi, 5 cs. Bombay, 50 Forbes, Forbes, & Co.	
Myrabolams Bombay, 900 bgs. T. H. Moore & Co.	
	" 222 Forbes, Forbes, & Co.
	" 206 W. & R. Graham & Co.
	3,781
Orchella Lisbon, 14 bls. J. Martin & Son	
	" 194 A. Barbosa & Co.
	" 50 Edward Bros.
	53
Saffron Spain, 1 cs.	
Sumac Palermo, 300 bgs. H. Rooke, Son, & Co.	
	" 2,450 100 bls.
	" 100 J. Kitchen & Co.
Valonia Patras, 400 bgs.	
	" 266 Papayanni & Jeremias
	" 110 Hamilton & Pritchard
	" 200 H. Theakstone & Co.
	" 770 G. E. Spiropulo
	" 938 P. A. Gavas
Farina — Antwerp, 50 cs. J. T. Fletcher & Co.	
Glucose — Hamburg, 100 bgs.	
Philadelphia, 150 bgs.	
Hamburg, 50 cks.	
New York, 198 brls.	
Lead Acetate — Hamburg, 33 cks.	
Rotterdam, 40	
Limestone — Antwerp, 1 fm. 1 cs. J. T. Fletcher	
	1
Litharge — Rotterdam, 16 cks.	
Ochre — Marseilles, 20 cks.	
Paint — Marseilles, 7 cs. 2 brls. Clover, Clayton, & Co.	
	13 7
Boston, 10	
New York, 20 Anglo-Am. Oil Co.	

Paraffin Scale — Baltimore, 255 brls.	
Prussiate of Soda — Antwerp, 2 brls.	
Pyrites — Huelva, 2,955 t. Matheson & Co. " 1,474 Tennants & Co.	
Rosin — Savannah, 7,850 brls. Charleston, 2,610 New York, 252 R. Crooks & Co.	
Salt — Rio de Janeiro, 4,100 t.	
Saltpetre — Hamburg, 48 kgs. 4 brls.	
Soap — Leghorn, 400 bxs. Brown Bros. & Co.	
	17
Naples, 33 cs. P. Behrends	
New York, 1 W. Cuthbertson	
Soapstone — Genoa, 508 bgs.	
Bordeaux, 100 G. G. Blackwell	
Stearine — Antwerp, 2 cks. J. T. Fletcher & Co.	
	13 bgs.
Rotterdam, 13 bls.	
Sulphur — Catania, 138 brls. 120 bgs. 100 t.	
Tallow — Boston, 54 hbd. 160 tcs. Baltimore, 75 San Francisco, 250 brls. Philadelphia, 30 100 In transit, 30 cs.	
Tartar — Naples, 1 ck. R. Powles Bordeaux, 11	
Tartaric Acid — Rotterdam, 70 cks.	
Tin Perchloride — Antwerp, 8 cks.	
Turpentine — Savannah, 1,540 cks.	
Ultramarine — In transit, 50 cs. Rotterdam, 1 2 cks.	
Verdigris — Bordeaux, 12 cks.	
Waste Salt — Hamburg, 100 bgs.	
White Lead — Rotterdam, 57 cks. Antwerp, 19 brls. J. T. Fletcher & Co.	
Zinc Oxide — Antwerp, 37 brls.	
Zinc White — Rotterdam, 60 cks. O. & H. Marcus	

HULL.

Week ending December 24th.

Acetic Acid — Rotterdam, 34 botls. 9 balns. Hutchinson & Son	
Acid — Rotterdam, 2 cks. Hutchinson & Son	
Hamburg, 1 cs. Wilson, Sons & Co., Ltd.	
New York, 30 cbys. Wilson, Sons & Co., Ltd.	
20 cs. Wilson, Sons & Co., Ltd.	
Alum — Rotterdam, 13 cks. Hutchinson & Son	
Arsenic — Hamburg, 10 cks. Wilson, Sons & Co., Ltd.	
Barytes — Antwerp, 64 cks. Bailey & Leatham	
	128 tkts. H. F. Pudsey
	100 bgs. Aire & Calder
	N. Co.
Bremen, 45 cks. H. F. Pudsey	
	45 Tudor & Sons
Caoutchouc — Hamburg, 6 cs. C. M. Lofthouse & Co.	

Chemicals (otherwise undescribed) Bremen, 3 cs. 18 cks. Veltmann & Co. " 1 kg. Storry, Smithson & Son	
Antwerp, 91 pkgs. Wilson, Sons & Co., Ltd.	
Colours — Flushing, 87 pkgs. 6 cks. 91 pkgs. Zee and S. S. Co.	
Rotterdam, 26 cs. 10 Storry, Witte & Co.	
Stettin, 20 cs. Wilson, Sons & Co., Ltd.	
Bremen, 5 cs. 4 Veltmann & Co.	
" 20 W. H. Walton & Co.	
" 28 Sissons Bros. & Co.	
Rotterdam, 8 cs. 13 Hutchinson & Son	
" 5 bxs. Blundell, Spence & Co.	
" 10 cs. 6 cks. 17 pkgs. G. Lawson & Sons	
Antwerp, 81 bgs. Wilson, Sons & Co., Ltd.	
	40 cks.
Cottonseed Oil — New York, 600 brls.	
Cryolite — Copenhagen, 6 cks. Wilson, Sons & Co., Ltd.	
Dextrine — Hamburg, 100 bgs. Wilson, Sons & Co., Ltd.	
Stettin, 145 Wilson, Sons & Co., Ltd.	
Dried Blood — Rouen, 12 cks. Rawson & Robinson	
Dyestuffs — Alizarine Rotterdam, 6 cks. W. & C. L. Ringrose	
Valonia Smyrna, 682 bgs. 302 t.	
Farina — Ghent, 120 bxs. Wilson, Sons & Co., Ltd.	
Harlingen, 800 bgs. 250 bls. Wilson, Sons & Co., Ltd.	
Stettin, 1,070	
Hamburg, 100	
Danzig, 100	
Glucose — New York, 20 brls. Wilson, Sons & Co., Ltd.	
	100
Hamburg, 12 cks. G. Lawson & Sons	
Stettin, 25 Wilson, Sons & Co., Ltd.	
Hamburg, 57 C. M. Lofthouse & Co.	
Lead Acetate — Stettin, 32 brls. Wilson, Sons & Co., Ltd.	
Lime — New York, 965 bgs. Wilson, Sons & Co., Ltd.	
Limestone — Antwerp, 2 cs. Bailey & Leatham	
Ochre — Rouen, 90 cks. Rawson & Robinson	
Paint — New York, 4 cs. Wilson, Sons & Co., Ltd.	
Phosphate — Ghent, 81 t.	
Plumbago — Hamburg, 6 bgs. Todd & Son	
" 17 cks.	
Potash — Dunkirk, 100 pkgs. 10 dms. Wilson, Sons & Co., Ltd.	
" 20	
Rotterdam, 20 cks. G. Lawson & Sons	
Hamburg, 10 Wilson, Sons & Co., Ltd.	
Quicksilver — Hamburg, 2 btl. Wilson, Sons & Co., Ltd.	
Rosin — Wilmington, 3,844 brls.	
Antwerp, 30 bgs. Wilson, Sons & Co., Ltd.	
Brunswick, 4,250 brls.	
Saltpetre — Hamburg, 4 kgs.	
Stearine — Antwerp, 19 bgs. Wilson, Sons & Co., Ltd.	

Tar— Danzig, 13 cks. Wilson, Sons & Co., Ltd.			Colours— Rotterdam, 1 ck. 1 cs. J. Rankine & Son			TYNE. <i>Week ending December 24th.</i>			Dyestuffs (otherwise undescribed) Boulogne, 9 cks. 5 cs.		
Turpentine— Libau, 104 brls. Wilson, Sons & Co., Ltd. Hamburg, 4 pks.			Dyestuffs— Alizarine Rotterdam, 28 cks. J. Rankine & Son			Alum Earth— Hamburg, 36 cks. Tyne S. S. Co.			Farina— Hamburg, 2,850 bgs. Delfsyzhl, 2,158		
Ultramarine— Bremen, 1 ck.			Extracts Antwerp, 6 cks.			Barium Chloride— Rotterdam, 5 cks. Tyne S. S. Co.			Lead Acetate— Hamburg, 33 cks.		
Yarnish— New York, 125 pks. Wilson, Sons & Co., Ltd.			Tannin Hamburg, 3 cs. 1 ck.			Chemicals (otherwise undescribed) Rotterdam, 1 ck. Tyne S. S. Co.			Potash— Hamburg, 20 cks. Calais, 5 38 dms. Dunkirk, 22 41		
White Lead— Rotterdam, 43 cks. Hutchinson & Son			Magnesia— Hamburg, 1 cs.			Limestone— Antwerp, 2 cs. Tyne S. S. Co.			Saltpetre— Rotterdam, 100 bgs. Hamburg, 95 cks 10 kgs.		
Antwerp, 101 Bailey & Leetham			Painters' Colours— Antwerp, 6 cs.			Paint— Rotterdam, 1 dm. Tyne S. S. Co.			GRIMSBY. <i>Week ending December 17th.</i>		
GLASGOW. <i>Week ending December 29th.</i>			Phosphate— Dunkirk, 1,000 bgs.			Pyrites— Antwerp, 530 t.			Caoutchouc— Hamburg, 5 cs.		
Alum— Rotterdam, 21 cks. J. Rankine & Son			Potash— Rotterdam, 30 cks. J. Rankine & Son			Sulphur— Huelva, 1,769 t. Scott Bros.			Chemicals (otherwise undescribed) Hamburg, 140 pkgs. 24 cks. Antwerp, 28 cs.		
Barium Sulphate— Antwerp, 430 bgs. 19 cks.			Potassium Carbonate— Hamburg, 24 pkgs. 62 cks.			Tallow— Pomaron, 948 t. Mason & Barry New York, 64 hds. Furness, Withy, & Co.			Dyestuffs (otherwise undescribed) Dieppe, 3 cks.		
Barytes— Rotterdam, 44 cks. J. Rankine & Son			Sulphuric Acid— Hamburg, 14 cks.			GOOLE. <i>Week ending December 14th.</i>			Farina— Hamburg, 80 bgs.		
Chemicals (otherwise undescribed) Hamburg, 3 cs.			Tartar Emetic— Hamburg, 3 cks. 2 cs.			Alizarine— Rotterdam, 147 brls.			Size— Antwerp, 6 cks.		
			White Lead— Rotterdam, 23 cks. J. Rankine & Son			Ammonia— Rotterdam, 6 cks.			Zinc Ashes— Antwerp, 23 cks.		
			Zinc "Oxide— Antwerp, 39 50 cks.								

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending December 28th.</i>			Boulogne, 1 9 49			Cream of Tartar—			Potassium Prussiate—		
Acetic Acid— Halifax, 1 t. 6 c. £23			Treport, 2 2 89			Adelaide, 1 t. £88			Lisbon, 4 c. £18		
Acids—			Leghorn, 18 30			Lytelton, 2 170			Potassium Sulphate—		
Penang, 1 cs. £10			Caustic Soda—			Oamaru, 6 c. 25			Barbadoes, 20 t. £200		
Savannah, 6 23			Natal, 8 c. £11			Rockhampton, 1 91			Saltpetre—		
Manila, 16 47			Pt. Elizabeth, 8 12			Sydney, 3 7 198			Melbourne, 4 t. £79		
Alkali—			Algoa Bay, 1 t. 13 53			Melbourne, 3 15 314			Brisbane, 10 c. 11		
Melbourne, 8 c. £27			Chemicals (otherwise undescribed)			Disinfectants—			Hamburg, 2 5 53		
Brisbane, 7 22			Algoa Bay, 4 c. 3 cks. £38			Sydney, 17 cs. £38			Oporto, 9 8 186		
Aluminous Cake—			Cape Town, 7 64			Hamburg, 90 cks. 450			Sydney, 2 45		
Dunedin, 3 t. £12			Chloride of Lime—			Dried Blood—			S. Michaels, 11 12		
Ammonia (Liquid)—			Rockhampton, 109 t. 16 c. £1,348			Canaries, 1 t. 10 c. £10			Natal, 10 12		
B. Ayres, 20 cs. £25			Citric Acid—			Guanos—			Sheep Dip—		
Sydney, 94 52			Hamburg, 4 kgs. 3 c. £56			Dominica, 7 t. 4 c. £70			Pt. Elizabeth, 21 t. 6 c. £156		
Ammonium Carbonate—			Genoa, 5 1 45			Morlaix, 380 3,800			Sydney, 1 8 200		
Adelaide, 5 c. £11			Sydney, 1 t. 5 196			Manure—			Geraldton, 1 8 63		
Melbourne, 20 cs. 30			Coal Products—			Teneriffe, 2 t. £16			Natal, 40 cs. 100		
Ammonium Chloride—			Boston, 20 cks. £265			Kingston, 2 10			Hobart, 4 60		
Alexandria, 10 c. £16			Aniline Oil			Bilbao, 18 7 c. 119			Soda—		
Madras, 1 t. 2 38			Rotterdam, 18 drs. £600			Bahia, 10 28			Madras, 4 t. 19 c. £18		
Bangkok, 6 12			Anthracene			Paris, 21 9 150			Soda Crystals—		
Constantinople, 5 156			Rotterdam, 225 cks. £1,275			Demerara, 180 1,807			Singapore, 10 c. £2		
Hamburg, 51 cks. 278			Dusseldorf, 250 1,295			Jersey, 80 11 499			Shanghai, 11 2		
Ammonium Sulphate—			Benzol			Barbadoes, 45 400			Demerara, 16 3		
Canaries, 10 t. £108			Calais, 20 cks. 23 pns. £329			Bayonne, 142 10 330			Hong Kong, 6 t. 10 32		
Rotterdam, 100 14 c. 1,000			Rotterdam, 178 15 1,023			Muriatic Acid—			Sodium Acetate—		
St. John's, N.B., 2 22			Creosote Oil			Barbadoes, 1 t. £19			Sydney, 7 cks. £66		
Ghent, 56 6 666			Treport, 12 cks. £22			Nitric Acid—			Sodium Bicarbonate—		
Demerara, 194 4 1,985			Naphthalene			Shanghai, 20 cs. £35			Melbourne, 5 t. £33		
Hamburg, 240 2,700			Boston, 90 122			Oxalic Acid—			Brisbane, 16 c. 10		
Amorphous Phosphorus—			Pitch			Brisbane, 3 pkgs. £5			Oamaru, 6 2		
Hong Kong, 1 c. £13			Antwerp, 972 t. £1,444			Melbourne, 1 t. 29			Santos, 1 19 14		
Arsenic—			Genoa, 956 1,386			Dunkirk, 10 270			Sodium Sulphate—		
Brisbane, 2 t. 6 c. £28			Sables d'Oloune, 1,337 1,763			Phosphorus—			Ghent, 65 t. £103		
Bisulphide of Carbon—			Terneuzen, 250 350			Melbourne, 10 cs. £101			Baltimore, 50 130		
Melbourne, 50 drs. £25			Boston, 250 brs. 116			Malta, 2 21			Sodium Tartrate—		
Sydney, 50 25			Tar			Potash—			Sydney, 1 t. £63		
Rotterdam, 2 t. 2 c. 30			Danzig, 500 brs. £240			Brisbane, 7 c. £6			Sulphur—		
Bleaching Powder—			Boston, 520 217			B. Ayres, 4 cks. £49			Demerara, 4 t. 11 c. £38		
Rio de Janeiro, 2 t. £35			Tar Oil			Potassium Bichromate—			Brisbane, 2 1 15		
Borax—			Treport, 45 brls. £40			B. Ayres, 4 cks. £49			Superphosphate—		
Melbourne, 1 t. 2 c. £30			Coal Products (otherwise undes.)			Potassium Chlorate—			Canaries, 1 t. 10 c. £7		
Rockhampton, 1 cs. 14			Shanghai, 20 drs. £16			Sydney, 10 t. £477			Superphosphate of Lime—		
Sydney, 10 19			Copper Sulphate—			Hong Kong, 1 75			Oporto, 9 t. £32		
Madras, 2 cks. 10			Brisbane, 1 t. 1 c. £16			Copenhagen, 2 3 c. 150			Tartaric Acid—		
Carbolic Acid—			Odessa, 1 16			Potassium Chloride—			Brisbane, 5 c. £30		
Lytelton, 1 t. 19 c. £33			Melbourne, 5 85			Oporto, 3 t. 19 c. £36			Hamburg, 1 brl. 11		
Yokohama, 20 cs. 86			Bangkok, 2 10 49			Potassium Cyanide—			Rockhampton, 5 29		
Rotterdam, 4 7 150						Brisbane, 5 cs. £29			Kurrachee, 15 84		
						B. Ayres, 4 23			Adelaide, 13 70		
									Melbourne, 2 t. 13 162		

LIVERPOOL.

Week ending December 28th.

Acetic Acid—

Portland, M., 10 c. £20

Alum—

Porto Alegre, 1 t. £6

Syra, 3 2 c. 15

Montreal, 6 19 77

Alexandria, 7 15 37

Smyrna, 4 1 19

Callao, 3 6 18

Alexandretta, 6 5 31

Ammonium Carbonate—

Montreal, 1 t. £26

San Sebastian, 4 c. 6

Carril, 5 2 q. 7

Antwerp, 2 3 6

Lisbon, 10 19

Ammonium Chloride—

Rotterdam, 1 t. 19 c. 2 q. £34

Genoa, 2 5 42

Melbourne, 12 16

Ammonium Sulphate—

Calcutta, 11 t. 5 c. £121

Valencia, 20 12 206

Demerara, 288 7 3 q. 1,083

Genoa, 100 1,200

Gr. Canary, 10 5

New York, 49 18 523

Barcelona, 30 15 520

Antimony—

Havana, 1 ck. 1

Antimony Salt—

Boston, 3 kgs. 1

Arsenic—

New York, 95 t. 6 c. £1,191

Asbestos—

Demerara, 1 trs. 1

Iquitos, 1 cs. 1

Lisbon, 1 1

Bleaching Powder—

Ancona, 30 cks. 1

Baltimore, 229 1

Boston, 832 17 brls.

Dunkirk, 74 21

Genoa, 90 21

Ghent, 21 10 pkgs.

Havana, 5 10 pkgs.

Malaga, 631 10 pkgs.

New York, 6 10 pkgs.

Oporto, 58 10 pkgs.

Rouen, 58 10 pkgs.

Calcutta, 71 cs. 10 pkgs.

Carril, 4 10 pkgs.

Hamburg, 44 10 pkgs.

Nantes, 74 10 pkgs.

New Orleans, 80 10 pkgs.

Philadelphia, 97 10 pkgs.

" 49 t. 16 c. £415

Boracic Acid—

Portland, M., 1 t. 14 c. 3 q. £69

Rotterdam, 2 14 3 108

Borax—

San Sebastian, 4 c. 3 q. £7

Cadiz, 19 30

Nantes, 1 t. 2 30

Calcium Chloride—

New York, 11 t. £25

Carbolic Acid—

Rotterdam, 14 t. 10 c. £556

Caustic Soda—

Amsterdam, 120 dms. 1

Antwerp, 32 135 brls.

Baltimore, 50 135 brls.

Batoum, 12 135 brls.

Bilbao, 12 135 brls.

Bombay, 120 28 cks.

Boston, 190 28 cks.

Brisbane, 30 28 cks.

Bundaberg, 15 25

Constantinople, 8 25

Dunkirk, 8 25

Genoa, 30 15 brs.

Havana, 60 15 brs.

Hiogo, 400 15 brs.

Iquitos, 4 kgs. 15 brs.

Leghorn, 187 15 brs.

Lisbon, 15 15 brs.

Marseilles, 30 15 brs.

Mauritius, 10 15 brs.

Milwaukee, 200 15 brs.

New York, 989 100 15 brs.

Penang, 172 15 brs.

Rangoon, 14 15 brs.

Rio de Janeiro, 20 15 brs.

Rouen, 122 15 brs.

Rotterdam, 28 15 brs.

Salaverry, 10 15 brs.

Sourabaya, 11 15 brs.

Stockholm, 25 25 cks.

Tarragona, 30 25 cks.

Ancona, 41 25 cks.

Aracagua, 10 25 cks.

Barcelona, 4 25 cks.

Bari, 90 25 cks.

B. Ayres, 71 25 cks.

Cadiz, 60 kgs. 25 cks.

Carthage, 10 25 cks.

Carril, 10 25 cks.

Cincinnati, 360 4

Fiume, 30 4

M. Video, 50 4

Naples, 12 4

Puerto Cabello, 8 4

Rio Grande, 20 4

Rosario, 20 4

Sagua la Grande, 15 4

San Francisco, 134 10 bns.

Santander, 7 10 bns.

Seville, 325 10 bns.

Valparaiso, 205 10 bns.

Yokohama, 30 10 bns.

Chemicals (otherwise undescribed.)

Naples, 1 t. £33

Alexandretta, 9 c. 14

Genoa, 10 16

Fiume, 18 31

Odessa, 10 16

Smyrna, 1 10 3 q. 57

Carthage, Sp., 2 1 15

China Clay—

Boston, 875 t. 679 cks.

Bremerhaven, 10 1

Barcelona, 100 bgs. 1

B. Ayres, 200 cks. 1

Calcutta, 89 1

Odessa, 5 t. 1

Rio de Janeiro, 6 1

Chloroform—

Montreal, 7 cs. 1

Coal Products—

Allzarine Oil 1

Vera Cruz, 10 cks. 1

Aniline Colours 1

Boston, 2 cs. 6 cks. 26 kgs. 1

Hiogo, 5 1

New York, 14 1

Shanghai, 50 1

Aniline Oil 1

Genoa, 11 dms. 1

Leghorn, 1 1

Aniline Salts 1

Constantinople, 3 kgs. 1

New York, 13 cks. 1

Creosote Oil 1

Marseilles, 150 brls. 1

Copperas—

Rio de Janeiro, 2 t. 1 c. £5

Bombay, 33 10 65

B. Ayres, 11 16 26

Smyrna, 6 4 11

Piræus, 6 11 14

Syra, 6 14 13

Copper Sulphate—

Carril, 13 c. 1 q. £10

Venice, 29 t. 18 3 453

Bordeaux, 65 10 2 990

Leghorn, 2 3 34

Tariagona, 10 2 3 160

Naples, 5 1 2 75

Antwerp, 3 7 2 49

Marseilles, 131 2 1 1,978

Porto Alegre, 9 3 9

Calcutta, 1 3 17

B. Ayres, 5 5 2 75

Ancona, 10 2 145

Piræus, 1 15 28

Barcelona, 11 12 183

Corrosive Sublimate—

Alexandretta, 1 c. 1 q. £19

Dextrine—

Vera Cruz, 20 bgs. 1

Farina—

Calcutta, 41 cks. 1

Gum Tragacanth—

Boston, 6 c. £68

Gypsum—

New York, 20 t. £90

Lime—

Manaos, 30 cks. 1

Montserrat, 25 pns. 1

Magnesia—

Havana, 9 pkgs. 1

Magnesium Sulphate—

Manila, 10 brls. 1

Metallic Sodium—

Rotterdam, 2 t. 4 c. 2 q. £468

Nitrate of Lead—

Genoa, 9 c. 2 q. £10

Ochre—

Callao, 50 brls. 1

Paint—

Accra, 20 kgs. 1

Amsterdam, 12 6 dms. 1

Bathurst, 52 4 cs. 2 cns. 1

Cape Haitien, 4 cks. 1

Cardenas, 3 1

Colon, 21 6 1

Havana, 2 1

Hong Kong, 2 421 kgs. 1

Melbourne, 4 1

M. Video, 17 55 cts. 45 cs. 1

Nagasaki, 100 kgs. 100 dms. 1

Para, 14 1

Piræus, 4 1

Puerto Plata, 11 25 1

Rosario, 1 cs. 9 brls. 1

Seville, 126 1

Sierra Leone, 126 1

Talcahuano, 12 1

Trieste, 100 1

B. Ayres, 52 43 tins. 5 dms. 1

C. C. Castle, 2 cs. 8 kgs. 1

Genoa, 2 cs. 8 kgs. 1

La Rochelle, 7 cs. 15 1

Lisbon, 7 cs. 15 1

Pisagua, 57 15 1

Rio de Janeiro, 25 4 brls. 1

Sagua la Grande, 1 4 brls. 1

San Sebastian, 1 4 brls. 1

Santander, 10 1

Santiago, 2 1

Talcahuano, 20 1

Valencia, 2 dms. 20 1

Vera Cruz, 8 3 cs. 1

Victoria, B.C., 5 dms. 15 33 1

" V.I., 15 33 1

Painters' Colours—

Alexandria, 30 cks. 1

B. Ayres, 10 cs. 30 131 brls. 115 kgs. 1

Calcutta, 40 1

Manaos, 12 50 bgs. 1

Marseilles, 12 50 bgs. 1

Naples, 20 1

New York, 183 200 1

Oporto, 20 20 kgs. 1

Para, 4 19 20 kgs. 1

Sydney, 40 17 50 bgs. 1

Valparaiso, 30 cs. 25 160 50 bgs. 1

Belize, 10 1

Bombay, 36 50 dms. 1,178 kgs. 1

Callao, 20 cks. 1

Iquique, 27 1

Lisbon, 2 bxs. 4 1

Matanzas, 2 t. 1

Montreal, 10 cks. 1

Philadelphia, 11 1

Paraffin Wax—

Odessa, 200 bgs. 1

Piræus, 10 bxs. 1

Rio de Janeiro, 29 dms. 2 cs. 1

San Sebastian, 220 bgs. 1

Ferrol, 2 cs. 1

Smyrna, 16 brls. 1

Syra, 66 bgs. 1

Phosphorus—

Shanghai, 11 cs. £69

Yokohama, 10 127

Hiogo, 40 498

Havana, 33 429

Pitch—

Marseilles, 771 t. 1

Volo, 2 19 c. 1

Carril, 100 brls. 1

Nantes, 2 1

Plumbago—

Valparaiso, 12 cks. 1

Potassium Bichromate—

Hiogo, 4 t. 10 c. £170

Potassium Carbonate—

Rio de Janeiro, 5 c. £5

Potassium Chlorate—

Carril, 6 c. £17

New York, 4 t. 5 224

Venice, 3 137

Havana, 5 10 369

Potassium Prussiate—

Vera Cruz, 10 c. 1 q. £44

Rosin Oil—

Alexandria, 6 brls. 1

Salt—

Algoa Bay, 1 t. 12 c. 1

Boston, 120 1

Calcutta, 6,334 1

Conakry, 31 5 1

Conquimbo, 1 1

Venice,	5	
Bilbao,	8	
B. Ayres,	30	150
Calcutta,	50	
Callao, 74 kgs.	80	
Carthage,	10	
Leghorn, 15 dms.		
New Orleans,	50	
New York,	817	2,844 tcs. 3,480
Philadelphia,	689	2,139
Porto Alegre,	179	
Puerto Cabello,	12 brls.	
Rosario,	185	
San Francisco,	126	
Sydney,	268	
Valparaiso,	10	
Soda Crystals—		
Boston,	280 brls. 280 cks.	
St. John's, Nfld.,	10	20 kgs.
Constantinople,	2	
Lisbon,	4	
San Francisco,	334	
Talcahuano,	200	
Valparaiso,	40	
Sodium Baborate—		
Portland, M.,	25 brls.	
Rotterdam,	5 cks.	
Sodium Bicarbonate—		
Antwerp,	15 kgs. 6 cks.	
Bremerhaven,	19	
B. Ayres,	24	17 brls.
Genoa,	100	13
Rouen,		
Ancona,	24	
Brisbane,	50	
Calcutta,	120	
Carthage,	20	
Copenhagen,	40	25
Halifax,	30	
Havre,	60	
Hioho,	1,000	
Pl. Natal,	25	
Rosario,	100	
St. John's, N. B.,	200	
St. John's, N. B.,	20	
St. Stephen's, N. B.,	100 kgs.	
Trieste,	125	
Valparaiso,	3 cks.	
Venice,	100	
Yokohama,	1,000	
Sodium Bichromate—		
Lisbon,	5 cks.	
Sodium Carbonate—		
New York,	140 brls.	
Sodium Chlorate—		
Boston,	50 kgs.	
New York,	100	
Venice,	20	
Sodium Hyposulphite—		
Callao,	10 kgs.	
Sodium Nitrate—		
Hamburg,	2 cks.	
Sodium Silicate—		
Hioho,	20 cks.	
Lisbon,	32	
Oporto,	5	
Pireus,	13	
Barcelona,	4	
Bombay,	10 kgs.	
Havre,	4 brls.	
Sodium Sulphate—		
Portland, Or.,	70 brls.	
Rio de Janeiro,	20 pkgs.	
Sulphate of Lime—		
Rio de Janeiro,	19 t. 3 c.	£48
Sulphur—		
Iquique,	11 t. 6 c. 2 q.	£76
Philadelphia,	70	363
Superphosphate—		
Gr. Canary,	10 c.	£2. 10s.
Tallow—		
Alexandria,	39 brls.	
Asim,	18 cks.	
Valencia,	8	
Vigo,	31	
Tar—		
C. C. Castle,	15 brls.	
Turpentine—		
Colon,	6 cks.	£5
Antwerp,	5 brls.	
Yarnish—		
Genoa,	4 cks.	
Havana,	1 cs.	
Leghorn,	2	
Lisbon,	1 brl.	
White Lead—		
Lisbon,	20 kgs.	
Zinc Chloride—		
Bombay,	11 t.	£7
Zinc White—		
Genoa,	10 cks.	
New York,	50	

HULL.

Week ending December 24th.

Alkali—		
Bergen,	2 cks.	
Rotterdam,	1 cs.	
Antimony—		
Libau,	40 cs.	
Caustic Soda—		
Hango,	50 dms.	
Chemicals (otherwise undescribed)		
Antwerp,	39 cs.	
Amsterdam,	12 pkgs.	
Copenhagen,	1 cs. 1 ck. 26 pks.	
Christiania,	4	10 cks. 35 pkgs.
Christiansand,	314 slbs.	
Gothenburg,	28 cks. 25 cs. 170	
Hamburg,	147	
Konigsberg,	16	
Libau,	5	180 dms.
New York,	113	
Odesa,	3	
Rouen,	15	
Reval,	68 bgs.	
Rotterdam,	129	80 cs.
Cottonseed Oil—		
Antwerp,	503 c.	
Amsterdam,	36	
Bremen,	100	
Hamburg,	200	
Konigsberg,	100	
Rotterdam,	2,011	
Stettin,	807	
Creosote—		
Odesa,	30 cks.	
Rotterdam,	48	
Dyestuffs (otherwise undescribed)		
Bergen,	1 ble.	
Hamburg,	3 cks.	
New York,	10	
Rouen,	10	
Reval,	2	
Linseed Oil—		
Christiania,	130 c.	
Christiansand,	314 slbs.	
Helsingfors,	68	
Hamburg,	94	
Manganese—		
Libau,	43 cks.	
Manure—		
Dunkirk,	40 t.	
Hamburg,	300 bgs.	
Valencia,	202	
Mineral White—		
Hamburg,	100 bgs.	
Harlingen,	200	
Rotterdam,	50	10 cks.
Stettin,	50	
Ochre—		
Rotterdam,	4 cks.	
Painters Colours—		
Antwerp,	15 cks. 40 pks. 1 cs.	
Amsterdam,	1	
Bergen,	1	
Bremen,	26 pkgs.	
Copenhagen,	19	
Constantinople,	2	
Dunkirk,	10	
Gothenburg,	6	
Hamburg,	2	
New York,	162	25
Rouen,	3	
Rotterdam,	1 cs.	
Stockholm,	2	4 dms.
Stettin,	16	
Christiania,	16	
Paraffin Wax		
Libau,	128 bgs.	
Pitch—		
Antwerp,	53 t.	
Dunkirk,	200	
Flushing,	150	
Size—		
Flushing,	10 cks.	
Soap—		
Antwerp,	20 cs.	
Christiania,	20	
Stettin,	3	
Tallow—		
Flushing,	9 cks.	
Gothenburg,	5	
Rotterdam,	41	
Tar—		
Amsterdam,	8 cks.	
Copenhagen,	6	
Yarnish—		
Antwerp,	6 cs. 1 ck.	

GLASGOW.

Week ending December 29th.

Acetic Acid—		
New York,		£36
Ammonium Chloride—		
Bilbao,	5 t. 8½ c.	£100
Ammonium Sulphate—		
Demerara,	134 t.	£1,464
Asbestos—		
Trinidad,	7 c.	£55
Borax—		
Christiania,	2 cks.	£12
Chloride of Lime—		
New York,	10 t. 3 c.	£81
Dyestuffs—		
Antiline		
Calcutta,	2 c.	£30
Extract		
Portland, M.,		£74
Dyestuffs (otherwise undescribed)		
New York,	2½ c.	£20. 10s.
Lead Acetate—		
Bombay,	3 t. 19 c.	£61
Lime—		
Demerara,	12 t. 3¼ c.	£30
Linseed Oil—		
Bombay,	3 t. 15 c.	£47
Magnesium Sulphate—		
Christiania,	10 t.	£30. 18s.
Manure—		
Demerara,	17 t. 9½ c.	£78
Jersey,	269 11	1,180
Paint—		
M. Video,	3 t. 15¼ c.	£59
Calcutta,		289
Bombay,	3 15	84
New York,	11 12	159
Painters' Colours—		
Colombo,		£38
Paraffin Wax—		
Christiania,	11½ c.	£15
Nantes,	6 t. 4¼	153
Pitch—		
Amsterdam,	253 t. 10 c.	£325
Genoa,	57 15	98
La Rochelle,	932 10	1,305
Philadelphia,	13 11	33
Potassium Bichromate—		
Rotterdam,	13 cks.	£195
Amsterdam,	14	105
Antwerp,	25 t. 3 c.	888
Salt—		
Trinidad,	25 t. 19¼ c.	£64
Sheep Dip—		
B. Ayres,	3 t. 10 c.	£100
Soap—		
Trinidad,	7 t. 1 c.	£130
Portland, M.,	2 14¼	39
Sodium Bichromate—		
Rotterdam,	12 cks.	
Nantes,	6 t. 10¼ c.	£214
Stearine—		
New York,	20 t. 8 c.	£680
Sulphur—		
Demerara,	11 t. 17¼ c.	£76
Tallow—		
Rotterdam,	7 t. 15 c.	£262
Tar—		
Calcutta,	24 t. 2 c.	£213
Philadelphia,		£27
Tin Salts—		
Trinidad,	1 t. 15 c.	£65
White Lead—		
Amsterdam,	5 c.	£6

TYNE.

Week ending December 24th.

Alkali—		
Amsterdam,	64 t. 10 c.	
Rotterdam,	5 8	
Ammonia Alkali—		
New York,	162 t. 3 c.	
Ammonium Sulphate—		
Rotterdam,	5 t. 11 c.	
Valencia,	65 12	
Antimony—		
Hamburg,	5 t.	
New York,	60	
Copenhagen,	6 c.	
Barium Binoxide—		
Dunkirk,	15 t. 19 c.	
New York,	2	
Barium Carbonate—		
New York,	96 t. 18 c.	

Barytes—

Antwerp, 5 t.

Hamburg, 100 3 c.

Bleaching Powder—

Lisbon, 15 t. 10 c.

Amsterdam, 20 6

Antwerp, 18 11

Dunkirk, 10 2

Gothenburg, 15 4

Genoa, 19 16

Rotterdam, 19 6

Danzig, 29 15

Copenhagen, 19

New York, 119 1

Drontheim, 10

Caustic Soda—

Hamburg, 4 t. 7 c.

Gothenburg, 4 19

Christiania, 4 19

Genoa, 3

New York, 145 1

Copenhagen, 2 12

Valencia, 7 10

Guano—

Genoa, 1 t.

Litharge—

Hamburg, 1 t. 2 c.

New York, 14 16

Lisbon, 3 4

Magnesia—

Hamburg, 5 c.

New York, 4

Genoa, 9

Paint—

Gothenburg, 13 c.

Soda—

Randers, 16 c.

Christiania, 25 t.

Genoa, 69 9

Rotterdam, 11 17

Copenhagen, 5 3

New York, 216 4

Soda Ash—

Lisbon, 15 t. 8 c.

Gothenburg, 50

Christiania, 5 1

Soda Crystals—

Amsterdam, 20 t. 3 c.

Antwerp, 5 1

New York, 208 3

Sodium Sulphate—

Copenhagen, 10 t. 1 c.

Sulphur—

Antwerp, 5 t.

Gothenburg, 10

Christiania, 75

Superphosphate—

Genoa, 5 t. 1 c.

Tallow—

Hamburg, 1 t. 26 c.

White Lead—

New York, 27 t. 9 c.

Copenhagen, 1 1

GRIMSBY.

Week ending December 17th.

Chemicals (otherwise undescribed)	
Dieppe,	2 cs. 148 pkgs.
Hambourg,	3 4 10 cks.
Rotterdam,	20 dms
Coal Products (otherwise undesc'd.)	
Dieppe,	168 cks.
Dyestuffs (otherwise undescribed)	
Dieppe,	2 cs. 1 ck.

GOOLE.

Week ending December 14th.

Benzol—	
Ghent,	32 dms.
Rotterdam,	66 cks.
Chemicals (otherwise undescribed)	
Antwerp,	2 cks.
Ghent,	1
Rotterdam,	107
Coal Products (otherwise undesc'd.)	
Ghent,	14 cks.
Dyestuffs (otherwise undescribed)	
Antwerp,	1 ck.
Boologne,	1 pkge.
Manure—	
Ghent,	676 bgs.
Rotterdam,	2,023
Pitch—	
Antwerp,	546 t.

WEDNESDAY, JAN. 4th, 1891.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—				£	s.	d.					£	s.	d.		
Acetic, 25 % and 40 %	per cwt.	7/-	&	11/-			Lime, Acetate (brown)	per ton	6	2	6				
" Glacial	"			50/-			" (grey)	"	10	15	0				
Arsenic S.G., 2000	"	0	14	6			Magnesium (ribbon and wire)	per oz.	0	2	3				
Fluoric	per lb.	0	0	3 3/4			" Chloride (ex ship)	per ton	2	7	6				
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10			" Carbonate	per cwt.	1	17	6				
" (Cylinder), 30° Tw.	"	0	3	0			" Hydrate	per ton	17	0	0				
Nitric 80° Tw.	per lb.	0	0	1 3/4			" Sulphate (Epsom Salts)	per ton	2	19	0				
Nitrous	"	0	0	1 3/4			Manganese, Sulphate	"	17	15	0				
Oxalic	nett	0	0	3 3/4			" Borate	per cwt.	2	12	6				
Phosphoric, 1750°	"	0	1	2 1/2			" Ore, 70 %	per ton	4	5	0				
Picric	"	0	1	1			Methylated Spirit, 61° O.P.	per gallon	0	2	0				
Sulphuric (fuming 50 %)	per ton	15	10	0			Naphtha (Wood), Solvent	"	0	3	11				
" (monohydrate)	"	5	10	0			" Miscible, 60° O.P.	"	0	4					
" (Pyrites, 168°)	"	3	5	0			Oils:—								
" (free from arsenic, 145°)	"	1	5	0			Cotton-seed	per ton	20	0	0				
Sulphurous (solution)	"	2	15	0			Linseed	"	19	10	0				
Tannic (pure)	per lb.	0	1	2			Lubricating, Scotch, 890°—895°	"	7	5	0				
Tartaric	"	0	0	11 3/4			Petroleum, Russian	per gallon	0	0	4 1/2				
Arsenic, white powdered	nett	12	10	0			" American	"	0	0	5 1/2				
Alum (loose lump)	"	5	5	0			Potassium (metal)	per oz.	0	3	7				
Alumina Sulphate (pure)	"	5	0	0			" Bichromate	per lb.	0	0	4 1/2				
Aluminium	per lb.	2s. 8d.	to	0 3 2			" Carbonate, 90% (ex ship)	per ton	18	0	0				
Ammonia, Anhydrous	"	0	1	1			" Chlorate	per lb.	0	0	8 1/2				
" 880=28°	per lb.	0	0	2 1/2			" Cyanide, 98%	"	0	2	2				
" =24°	"	0	0	1 3/4			" Hydrate (Caustic Potash) 80/85 %	per ton	22	5	0				
" Carbonate	nett	0	0	3 3/4			" " (Caustic Potash) 75/80 %	"	21	5	0				
" Muriate	per ton	20	0	0			" " (Caustic Potash) 70/75 %	"	20	15	0				
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-			" Nitrate (refined)	per cwt.	1	2	6				
" Nitrate	per ton	38	10	0			" Permanganate	per cwt.	3	7	6				
" Phosphate	per lb.	0	0	10 1/2			" Prussiate Yellow	per lb.	0	0	9 1/2				
" Sulphate (grey) London	per ton	10	2	6			" Sulphate, 90 % (ex ship)	per ton	9	15	0				
" (grey) Hull	"	10	0	0			" Muriate, 80 % (do.)	"	8	0	0				
Aniline Oil (pure)	per lb.	0	0	7			Silver (metal)	per oz.	0	3	2 1/2				
Aniline Salt	"	0	0	6 1/2			" Nitrate	"	0	2	10				
Antimony	per ton	45	10	0			Sodium (metal)	per lb.	0	3	4				
" (tartar emetic)	per lb.	0	1	0			" Carb. (refined Soda-ash) 48 %	nett	per ton	6	2	6			
" (golden sulphide)	"	0	0	10			" " (Caustic Soda-ash) 48 %	"	"	5	0				
Barium Chloride	per ton	7	10	0			" " (Carb. Soda-ash) 48 %	"	"	5	2	6			
" Carbonate (native)	"	3	10	0			" " (Carb. Soda-ash) 58 %	"	"	5	7	6			
" Sulphate (native levigated)	"	45/-	to	75/-			" (Soda Crystals)	"	"	3	2	6			
Bleaching Powder, 35 %	nett	"	7	10	0		" Acetate (ex-ship)	"	"	18	0				
" Liquor, 7 %	"	"	3	10	0		" Arseniate, 45 %	"	"	11	15	0			
Bisulphide of Carbon	"	"	11	15	0		" Chlorate	per lb.	0	0	9 1/2				
Chromium Acetate (crystal)	per lb.	0	0	6			" Borate (Borax)	net, per ton	29	0	0				
Calcium Chloride	per ton	2	5	0			" Bichromate	per lb.	0	0	3 1/4				
China Clay (at Runcorn) in bulk	"	17/6	to	35/-			" Hydrate (77 % Caustic Soda)(f.o.b.)	net pr. ton	11	0	0				
Coal Tar Dyes:—							" " (74 % Caustic Soda)	"	"	10	10	0			
Alizarine (artificial) 20 %	nett	per lb.	0	0	8		" " (70 % Caustic Soda)	"	"	9	10	0			
Magenta	"	"	0	3	9		" " (60 % Caustic Soda)	"	"	8	10	0			
Coal Tar Products							" " (60 % Caustic Soda, cream) (f.o.b.)	"	"	8	5	0			
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	0	0		" Bicarbonate	"	"	6	10	0			
Benzol, 90 % nominal	per gallon	0	2	2			" Hyposulphite	"	"	7	10	0			
" 50/90	"	"	0	1	6		" Manganate, 30%	"	"	16	0	0			
Carbolic Acid (crystallised 40°)	per lb.	0	0	7 1/4			" Nitrate (95 % ex-ship Liverpool)	per cwt.	0	8	10 1/2				
" (crude 60°)	per gallon	0	2	2			" Nitrite, 98 %	per ton	30	0	0				
Creosote (ordinary)	"	"	0	0	1 3/4		" Phosphate	"	"	15	10	0			
" (filtered for Lucigen light)	"	"	0	0	1 3/4		" Prussiate	per lb.	0	0	7 3/4				
Crude Naphtha 30 % @ 120° C.	"	"	0	0	11		" Silicate (glass)	per ton	5	7	6				
Grease Oils, 22° Tw.	per ton	2	5	0			" (liquid, 100° Tw.)	"	"	4	5	0			
Pitch, f.o.b. Liverpool or Garston	"	"	1	8	0		" Stannate, 40 %	per cwt.	3	5	0				
Solvent Naphtha, 90 % at 160°	per gallon	0	1	0			" Sulphate (Salt-cake)	per ton.	1	10	0				
Coke-oven Oils (crude)	"	"	0	1	1		" (Glauber's Salts)	"	"	1	15	0			
Copper	per ton	46	15	0			" Sulphide	"	"	7	15	0			
" Sulphate	"	"	16	0	0		" Sulphite	"	"	6	12	6			
" Oxide (copper scales)	"	"	42	0	0		Strontium Hydrate, 100%	"	"	8	10	0			
Glycerine (crude)	"	"	13	0	0		Sulphocyanide Ammonium, 95 %	per lb.	0	0	7 1/4				
" (distilled S.G. 1250°)	"	"	43	0	0		" Barium, 95 %	"	"	0	0	5			
Iodine	nett, per oz.	0	0	9			" Potassium	"	"	0	0	7 1/2			
Iron Sulphate (copperas)	per ton	1	12	6			Sulphur (Flowers)	per ton.	8	0	0				
" Sulphide (antimony slag)	"	"	2	0	0		" (Roll Brimstone)	"	"	6	15	0			
Lead (sheet) for cash	"	"	11	2	6		" Brimstone: Best Quality (nominal)	"	"	4	10	0			
" Litharge Flake (ex ship)	"	"	13	10	0		Superphosphate of Lime (26 %)	"	"	2	7	6			
" Acetate (white)	"	"	25	10	0		Tallow	"	"	26	5	0			
" brown)	"	"	17	5	0		Tin (English Ingots)	"	"	95	0	0			
" Carbonate (white lead) pure	"	"	20	0	0		" Crystals	per lb.	0	0	6 3/4				
" Nitrate	"	"	20	0	0		Zinc (Spelter)	per ton	18	5	0				
							" Chloride (solution, 96° Tw.)	"	"	6	0	0			

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THE CART THAT BLOCKS THE WAY.

SO far, the Irwell and Mersey Joint Committee have had pretty clear sailing. They have had difficulties to meet undoubtedly, and some of them have been serious ones. They also experienced lately some internal friction which threatened to interfere with the co-operation which it is desirable to maintain in a committee composed, as is the Joint Committee, of representatives of a number of different interests.

This difficulty is one, however, which we think can be surmounted, and we hope to see a satisfactory settlement arise out of the conference which is to be held at the Salford Town Hall on the 23rd inst. An assurance of the determination of the Joint Committee to deal fairly, but firmly, with dilatory Local Authorities, is to be found in their action in the Whitefield case, which was brought before their notice this week.

The position taken by the Joint Committee in this case should carry weight with those who think there is a tendency on the part of the committee to take things too easily; and the aggrieved parties should bear in mind that this Local Board received about as many months' grace at the hands of the Joint Committee, as it had received years, when the River Irwell Conservancy Committee were dealing with the case.

But the real obstacle which stands in the way of the Joint Committee is that cumbersome piece of machinery—the Local Government Board; and in endeavouring to stir up that somniferous body, the Salford Corporation should be entirely at one with the Joint Committee.

The delay caused by the slowness with which the Local Government Board moves, has been referred to pretty strongly at the previous meetings of the Joint Committee, but a perusal of the last report made by the Chief Inspector, reveals a state of affairs which will bring matters to a deadlock before long, unless something is done to dispel the lethargy under which the Local Government Board labours. Time and experience have proved that individual effort to compass this end are ineffectual. Like a hay cart in a narrow lane, the Board creeps along, and wrecks every vehicle that endeavours to pass it. The chief opposition to the passing of the special Act which the Joint Committee obtained last year, emanated from this source. Whether the Board could foresee a speedy termination to its peaceful slumbers if the Act was passed, it is impossible to say; but as the Act has been passed, we may rest assured that the Board will not feel disposed to bestir itself on behalf of the Joint Committee. If, however, all the interests represented by the Joint Committee can be brought to bear upon this question, and one and all unanimously put their shoulder to the wheel, we shall perhaps see the Local Government Haycart pushed along *volens volens* at a somewhat increased pace. If the Board can be made to rival the tortoise, it will at all events be an advance upon their present snail-like movements.

In a case of this kind there is, in our opinion, nothing like importunity. A deputation is well enough in its way, but it is something like jerking a tow-line—the long steady pull is what moves the barge.

The necessity for taking active steps in this matter is urgent. Already local authorities have spied a loophole in the long-windedness of the Local Government Board, and are using the same as an offset against the pressure which is brought to bear on them. With every fresh report made by the Chief Inspector we find an extended use of the phrase, "and are awaiting the sanction of the Local Government Board." This wait, wait, wait would not be so irritating if, to pervert the words of a well-known quotation, we could say,

Though the L.G.B. mills grind slowly,
They grind exceeding fine.

But they don't! After years of delay we sometimes see the very methods which the Board have condemned, figuring among those which are to be most strongly recommended.

It is self-evident, therefore, that if the Joint Committee are going to allow months instead of years for authorities to get their schemes into working order, the Local Government Board must also take months instead of years to sanction such schemes. When the Joint Committee have secured this necessary change of *status*, they will have broken the back of their self-imposed task.

THE BURY RIVER POLLUTION CASE.

On Wednesday last, the appeal made by the Bury Corporation against the decision of the borough magistrates of Bury, in the prosecution instituted by the Mersey and Irwell Joint Committee against the afore-mentioned Corporation for polluting the Rivers Irwell and Roch, came on for hearing at the Salford Hundred Quarter Sessions. The case was heard before his Honour Judge Jordan and other magistrates, including his Honour Judge Heywood. After a somewhat lively altercation between Mr. Gully, Q.C., counsel for the appellants, and Mr. Sutton (who appeared on behalf of the respondents) as to whether evidence should be called to prove that a nuisance was created by the Corporation pouring their sewage into the rivers, it was finally decided that such evidence should be heard. Mr. Gully made a long speech for the defence based upon the rights and privileges conferred upon Bury by the Local Act of 1846.

The Court, however, ultimately unanimously dismissed the appeal with costs, and refused to grant a case for the superior court. A full report of the proceedings will appear in a subsequent issue.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual meeting of this Committee, which is held every month, took place on Monday, 9th inst., at the rooms of the Committee, the vice-chairman (Mr. Alderman J. Thompson) presiding.

After the announcement of an official intimation from Bury that the Corporation had nominated Councillor A. F. Bently to represent them on the Joint Committee, the Clerk to the Committee (Mr. Hulton) reported what had been done in regard to

THE SALFORD DIFFICULTY.

In accordance with his instructions, he visited Sir Hugh Owen in London, who suggested that it would be desirable to hold a conference between the two bodies, with a view to arriving at a joint line of action. He accordingly communicated with the Mayor of Salford, after consultation with Mr. Hibbert, and suggested an interview should be held. Thereupon he received a letter from the Mayor saying that his Worship would be glad to meet a sub-committee of the Joint Committee, when the whole matter might be fully discussed, and asking him (the Clerk) to name a day or days for the interview. The time and date which he subsequently named were not convenient for the Corporation, the Town Clerk in his letter also asking for an interview

between the River Irwell Conservancy Committee of the Salford Corporation and the members of the sub-committee appointed by the Joint Committee to wait upon the Local Government Board if necessary. After some discussion, the meeting agreed that the whole of the members of both the Joint and Corporation Committees should meet in conference at the Town Hall, Salford, on Monday, 23rd inst.

THE PROCEEDINGS AGAINST WHITEFIELD.

A deputation was received from the Whitefield Local Board to explain the reason why the Board was making such tardy progress with its sewage works.

Mr. Farrar stated that in accordance with a suggestion made when the deputation were last before the Committee, they had approached the Radcliffe Local Board on the subject. Mr. Monks read the correspondence which had passed on this point between the two Boards. The question was to have been brought before the Radcliffe Board last Wednesday week, but with what result he had not heard. Mr. Thorp produced a plan for dealing with the sewage of the district. Under the scheme which he had in view land was to be got from Mr. Statter at a certain point. Mr. Thorp was cut short in his explanations of the plan by questions as to how long the plan had been in existence, whether it was not, in fact, prepared years ago, and whether any *bona-fide* arrangement had been made with Mr. Statter to take the land referred to. In answer to these questions, it was stated that the price at which the land was to be obtained had been arranged within the last month, and that the plan now submitted had been prepared within the same period. A member of the Committee put the question bluntly: "When do you intend to set about the work—how soon?" Mr. Farrar replied that they were fast, and could not do anything until the result of a Local Government inquiry had been ascertained. The Chairman pointed out that this matter had been undergoing consideration for about eight years. He impressed on the deputation that nothing was to be gained by delay, and the Committee felt it was their duty to press the matter as strongly as they could, as it was unfair to great towns like Salford that, after spending large sums of money to purify the river, their efforts should be neutralised by local authorities higher up the stream.

On the withdrawal of the deputation, it was decided to continue the prosecution against Whitefield.

REPORT OF THE CHIEF INSPECTOR.

The Chief Inspector, Mr. R. A. Tatton, presented his report, as follows:—

The extension of time granted to the authorities having expired in the cases of Mossley, Stalybridge, Dukinfield, Failsworth, Droylsden, Denton, Little Lever, Reddish, Ramsbottom, Marple, Aspull, and Wilmslow, it will be for your committee to consider whether a further extension should be granted. I beg to report on the several cases as follows:—

Mossley Corporation.—Plans for sewage works have been sent to the Local Government Board, and application made for borrowing powers; a provisional agreement has been entered into for the purchase of land, conditional on the scheme which has been submitted to the Local Government Board being sanctioned.

Stalybridge Corporation and Dukinfield Local Board.—A joint bill is being promoted in Parliament by these two authorities for power to construct sewage works on land which is at present in the possession of the Local Board.

Failsworth Local Board.—A provisional agreement has been entered into for the acquirement of land on which to construct sewage works. The clerk writes that application will be made to the Local Government Board for their sanction to the proposed scheme in a few days.

Droylsden Local Board.—Scheme has been submitted to Local Government Board.

Denton and Haughton Local Board.—The purchase of land for sewage works has not yet been completed, and the preparation of the plans is being delayed in consequence.

Little Lever Local Board.—The Local Board have approved of the plans for the sewage works, and have directed application to be made to the Local Government Board for borrowing powers.

Reddish Local Board.—An agreement has been come to for the county borough of Stockport to take over this district.

Ramsbottom Local Board.—An agreement has been entered into for the purchase of land at Summerseat on which to make sewage outfall works.

Marple Local Board.—The Local Board is in possession of land which is considered sufficient for sewage outfall works, and plans for the same are now in progress.

Aspull Local Board.—The present position of this Authority is that application has been made to the Local Government Board for sanction to admit the sewage into the Wigan sewers. This sanction has not yet been obtained, but there is no reason to doubt that it will be, as there was no opposition at the local inquiry.

Wilmslow Local Board.—A resolution has been passed by the Board instructing their engineer to prepare plans and estimates for the con-

struction of sewage works for that portion of the district which is at present unprovided for, but the Board has not yet succeeded in purchasing the required land.

Macclesfield Corporation.—The clerk wrote to me on December 20 that having been unable to purchase land, the Corporation had presented a petition to the Local Government Board for a provisional order to put in force the provisions of the Lands Clauses Act. The plans for the scheme are being proceeded with.

The Mottram and Hollingworth Local Boards.—The question of the sewage disposal of this district has been further inquired into since your last meeting, and I have to report that the Local Board of Mottram have given instructions to their engineer to proceed with the preparation of plans, so that application may be made to the Local Government Board. The actual pollution of the river from this district is no doubt small, as the river at the point where the sewage enters it is of considerable volume, but this cannot be urged as a reason for total exemption. Works should be carried out for the more populous part, and I would suggest that each of these Local Boards be required to make application to the Local Government Board for borrowing powers within three months from the present time.

Middleton Corporation.—The progress which has been made by this Corporation in the preparation of their sewage scheme has not been such as to warrant the belief that they are moving with much energy in the matter. The negotiations for land which have been in progress for a considerable time have not yet been concluded. I beg to recommend, therefore, to the Joint Committee the advisability of giving notice to the Middleton Corporation that unless the purchase of land is completed within one month from the present time, and application to the Local Government Board made within three months, action will be taken against them.

Whitworth Local Board.—The Whitworth Local Board are in a similar position to the last-named authority, and negotiations for land in their case also have not been completed. I would suggest that notice be given that unless the purchase of land is completed within one month from the present time, and application made to the Local Government Board within three months, action will be taken against them.

Local Bills in Parliament.—The Corporation of Ashton-under-Lyne is promoting a bill in Parliament to authorise the construction of new sewers, and to make better provision in relation to the health, local government, and improvement of the borough. The sewers are detailed in the bill, and a copy of the Parliamentary plans and sections have been sent to this office; the bill also provides for the appropriation of 27 acres of land in the township of Dukinfield for purposes of sewage treatment. The limit of time for the completion of the works is fixed at five years, that is to say, the powers given by the Act cease for such works as are not completed by that time. A bill is also being promoted in Parliament to constitute a joint sewerage committee for the borough of Stalybridge and the district of Dukinfield, and to confer powers for making and maintaining sewerage works, and for other purposes. A copy of the Parliamentary plan has been sent to this office. The bill proposes to take the sewage of these two authorities to a plot of land called the Bradleyhurst Farm, on the banks of the river Tame, below Dukinfield. This land is now in the possession of the Dukinfield Local Board, and the joint sewerage committee take power to buy it and the Local Board to sell it. The area of the plot of land is 63 acres 1 rood and 32 perches, which, if properly utilised and provided with precipitation tanks and filters, should be amply sufficient to deal with the sewage of the two districts, the combined population of which is 44,500. Clause 18 provides that the works shall be completed within two years from the passing of the Act. One matter to which your attention should be drawn is that as the plans were not deposited by November 30 standing orders will have to be suspended before this bill is allowed to proceed. As far as can be judged from the copies of the bills and Parliamentary plans which I have received, I consider that both these schemes should be sufficient for dealing with the sewage of the districts. One cannot, however, help feeling that it is unfortunate that the local authorities concerned could not see their way to a joint scheme to deal with the whole of the sewage on one area.

With reference to the bills before Parliament, authority was given the Clerk to consult his Parliamentary agent and secure a *locus standi* with the Parliamentary Committee. It was thought that five years was much too long a period to be allowed for the completion of the works contemplated by the Corporation of Ashton-under-Lyne, and that there ought to be a penal clause inserted in each bill. Concerning the Salford Improvement Bill, the Clerk pointed out that Salford was seeking to strengthen itself by obtaining such powers as were conferred on the Joint Committee by the Act of 1892. He urged that care should be taken to see that the operation of those extra powers was limited to the borough of Salford. This, it was stated by Dr. Walmsley and Mr. Groves (representatives of Salford), was all that the Corporation of Salford wished for.

EXTENSIONS OF TIME GRANTED.

Various extensions of time were granted in the following cases, which had been under the consideration of the Consultative Committee, who had resolved that Ramsbottom should be allowed three months' extension of time. Denton and Haughton one month, Wilmslow one month, proceedings to be at once instituted if at the end of that time it be seen that no advance had been made (the Chairman said this was one of those cases where there had been a wilful intention to procrastinate as much as possible); Mossley, Stalybridge, Dukinfield, Droylsden, and Little Lever three months; Failsworth one month, Marple one month, Aspull three months, Macclesfield three months, Middleton one month, Whitworth one month, Mottram and Hollingworth three months.

Mr. Armitage pointed out the serious delay which the Joint Committee had to contend with, owing to the inefficiency of the Local Government Board. It was resolved to call the attention of that body to the matter.

AN OBJECT LESSON IN AGRICULTURAL EDUCATION.

(Concluded from page 4.)

VALUATION OF FERTILIZING MATERIALS.

THE foregoing materials, owing to their suitability for the manufacture of fertilizers, have a certain market value, and it is pretty generally known what the value of each of these compounds is, reckoning so much for every pound of fertilizing ingredients. As these values differ in various countries, it would be useless to give the figures specially prepared for the United States, but the analyses which have been prepared to enable the valuation principle to be applied, are of interest and use, as they are available for the specific application of the values ruling in any country.

ANALYSES OF FERTILIZING MATERIALS.

Name of Substance.	Moist- ure.	Nitro- gen.	Pot- ash.	Phosphoric Acid.		
				Avail- able	Insolu- ble.	Total.
<i>A. Materials containing phosphates.</i>						
Apatite .....	.....	.....	.....	.....	.....	36.08
Bone ash	7.00	.....	.....	.....	.....	35.89
Cuba guano	24.27	1.67	.....	.....	.....	13.35
Mona Island guano	12.52	0.76	.....	7.55	14.33	21.88
Peruvian guano	14.81	7.85	2.61	8.36	6.90	15.26
S. Carolina rock (ground) ..	1.50	.....	.....	0.60	27.43	28.03
..... (dissolved) .....	.....	.....	.....	11.60	3.60	15.20
<i>B. "Materials" containing potassium.</i>						
Carnallite .....	.....	.....	13.68	.....	.....	.....
Cotton-seed hull ashes	7.33	.....	23.80	.....	.....	8.50
Kainite	3.20	.....	13.54	.....	.....	.....
Krugite	4.82	.....	8.42	.....	.....	.....
Muriate of potash	2.00	.....	52.46	.....	.....	.....
Nitrate of potash	1.93	13.09	45.19	.....	.....	.....
Spent tan bark ashes	6.31	.....	2.04	.....	.....	1.61
Sul. potash (high grade)	1.25	.....	38.60	.....	.....	.....
Sul. potash and magnesia ..	4.75	.....	23.50	.....	.....	.....
Waste fr. gunpowder works ..	2.75	2.43	18.00	.....	.....	.....
<i>C. Materials containing nitrogen.</i>						
Dried blood	12.5	10.52	.....	.....	.....	1.91
Oleomargarine Refuse	8.54	12.12	.....	.....	.....	0.88
Sulphate of Ammonia	1.0	20.50	.....	.....	.....	.....

This subject has already been mentioned, and further particulars showing the advantages which attend the system have been described in the back numbers of this Journal (No. 209), and therefore there is no need for any further reference to the matter here.

Thus far the information afforded the farmer has, in addition to being instructive, been constructive, the object being to enable those who have followed the bulletins in succession to understand, in the first place, the analyses (applying their knowledge of the manurial advantages of the various fertilizers to their peculiar requirements); and, secondly, to accomplish the ultimate aim of the bulletins, as set forth at the commencement under heading IX., viz., to enable farmers to determine the commercial value of a fertilizer.

The terms employed by chemists to express their analyses would, however, present difficulties to the untutored, and we consequently find the following

EXPLANATION OF ANALYTICAL TERMS,

which may be briefly summarised as follows:—

Nitrogen determined as such.—Nitrogen is a gas, and in this form cannot be used in fertilizers. Therefore, whenever we speak of nitrogen in fertilizers, we do not mean that nitrogen exists in them as simple nitrogen. As previously stated, the nitrogen in fertilizers is always combined with other elements, and may be present in one or more different forms, (1st) in the form of nitrates, as sodium nitrate; (2nd) in the form of ammonia compounds, as ammonium sulphate; and (3rd) in organic matter, such as dried blood and decayed vegetable matters. The figures, therefore, for nitrogen as nitrogen show the amount of nitrogen present irregardless of how it occurs.

Nitrogen as ammonia.—The chemical relations of nitrogen and ammonia are such that 14 pounds of nitrogen will unite with exactly three pounds of hydrogen, and will, therefore, produce just 17 pounds of ammonia. The term equivalent to ammonia simply means the amount of ammonia there would be if all the nitrogen was present in the form of ammonia.

Manufacturers often express the nitrogen as ammonia to make the fertilizers appear to the farmer to contain more nitrogen. While this method is in accordance with legal requirements, and is entirely fair on the part of the manufacturers, farmers should know that "nitrogen" and "ammonia" are not the same thing, since one pound of ammonia contains only about eight-tenths of a pound of nitrogen.

Phosphoric acid.—When we use the term "phosphoric acid" in connection with the chemical analysis of fertilizers, we mean a compound containing phosphorus and oxygen, which compound is really not phosphoric acid at all, and which could not well exist in fertilizers; but chemists have, as a matter of convenience, adopted this form of statement. So when the term "phosphoric acid" is used, it means simply the compound of phosphorus and oxygen known chemically as phosphorus pentoxide or phosphorus anhydride, and expresses the amount of the phosphorus oxide that is equivalent to the phosphoric acid (in the form of phosphate of lime or calcium) actually existing in the fertilizer.

Available phosphoric acid.—This represents the amount of phosphoric acid that is present in the form of soluble calcium phosphate plus the amount present in the form of reverted calcium phosphate. As explained before, soluble calcium phosphate is formed by treating with sulphuric acid some form of insoluble calcium phosphate, such as bones, bone-ash, South Carolina rock, etc. The phosphate thus formed is readily soluble in water. This soluble phosphate, on standing, is, to some extent, changed into a less soluble form, which is still quite readily available as plant food. Since both the soluble and reverted form of phosphates are available as plant food, we include in a statement of analysis, under the head of "Available" Phosphoric Acid, the phosphoric acid that is present in the forms of both soluble and reverted calcium phosphates.

Insoluble phosphoric acid represents the amount of phosphoric acid that is present in the form of insoluble calcium phosphate. This form is not soluble in water, and is the least valuable form of phosphates.

Total phosphoric acid represents the entire amount of phosphoric acid present in a fertilizer, without regard to the form in which it exists. The total phosphoric acid is, therefore, the sum of the available and insoluble phosphoric acid.

Potash soluble in water.—The term "potash" as used in connection with the analysis of fertilizers, always means the compound containing potassium and oxygen, known as potassium oxide. Potash or potassium oxide is never found as such in fertilizers, but chemists use this form of expressing results of analysis as a convenient standard for reference. Fertilizers generally contain potash in such forms as sulphate of potash, chloride of potash or carbonate of potash; and in the analyses "Determined as Potash" represents the amount of actual potash (potassium oxide) that is equivalent to the sulphate, chloride, or carbonate of potash present. The "Potash soluble in water" represents the available potash, and only this is determined. The forms of potash commonly present in commercial fertilizers, such as the chloride, sulphate and carbonate, are readily soluble in water, and are, therefore, available as plant food.

APPARENT DISCREPANCIES IN ANALYSES.

If we add together the figures representing the different constituents of a fertilizer (the nitrogen, the total phosphoric acid, and the potash), we shall find, as a rule, that the sum amounts to only 20 or 30 per cent., or pounds per hundred. The question often rises, "Why does the sum of the constituents in the analysis of a fertilizer amount to only 20 or 30 per cent., and what is the remaining portion, amounting to 70 or 80 per cent., made up of?" A new illustration will, perhaps, suffice to make the matter clear.

Taking a low grade fertilizer, we find by analysis that it contains 0.8 per cent. of nitrogen, 8 per cent. of available phosphoric acid, 0.5 per cent. insoluble phosphoric acid, and 2 per cent. of potash.

	Pounds.
Dried blood required to furnish 0.8 pounds of nitrogen	8
Bones, etc., required to furnish 8 pounds of available and 0.5 pounds insoluble phosphoric acid	37
Sulphate of potash (pure) equivalent to 2 pounds of potash	3.7
Moisture, dirt, etc.	51.3
Total	100

While the foregoing calculation is not entirely accurate for many fertilizers, it serves to give a fair idea of what a hundred pounds of a fertiliser may be made up, and why the chemist's statement of analysis does not account for more than 20 or 30 pounds in 100 pounds.

In order to facilitate calculations of the values of fertilizers, the following factors for converting the various compounds into equivalents of other chemical compounds are given.

(1) To change ammonia into an equivalent amount of nitrogen, multiply amount of ammonia by	8.235
(2) To change nitrogen into an equivalent amount of ammonia, multiply amount of nitrogen by	1.214
(3) To change muriate (chloride) of potash into an equivalent amount of actual potash, multiply amount of muriate by	.63
(4) To change actual potash into an equivalent amount of muriate (chloride) of potash, multiply amount of actual potash by	1.585
(5) To change sulphate of potash into an equivalent amount of actual potash, multiply amount of sulphate by	.54
(6) To change actual potash into an equivalent amount of sulphate of potash, multiply amount of actual potash by	1.85

Such, then, is the outline of the work done in America through the agency of these experimental stations, and the literature they disseminate. Well may the heart of the American farmer rejoice!

The foregoing gives but a scanty idea of the simple comprehensiveness of the bulletins, which contained close on 300 analyses made at the Geneva station alone, of different brands of fertilizers compared with the manufacturers' standards. In addition to this, extensive researches upon cheese-making have been carried out, and having special interest to agriculturists in this country have been already placed in a condensed form in the hands of our readers.

Our object in having thus outlined the system of educating the farmer adopted in the United States of America, is two-fold. While shewing what ought in modified form to be done in this country, we have also given an amount of information which will be intelligible to, and assist the education of all versed in the elements of agriculture, and so prepare them for the better instruction which we hope to see. We also take this opportunity of thanking Dr. Peter Collier, the director of the Geneva station, for the kindly assistance he has afforded us.

In New Zealand, the Canterbury College is doing excellent work on lines practically identical with those we have described, the work being in the chemical and physical departments presided over by Mr. G. Gray, while Mr. W. E. Ivey acts as director and agricultural lecturer. At a subsequent date we intend to give some information regarding the useful work which is being done in the colonies. When will the happy task of chronicling the performance of such work at home fall to our lot?

We have always in this journal given attention to agricultural chemistry, as it affects the mineral, chemical, oil, glue, and manure industries, and not only would farmers and the country benefit by the assistance of such a work as we have detailed, but manure and feeding stuff manufacturers, sugar and chemical manufacturers and others would likewise be protected and legislative measures, which threaten to place hurtful hindrance in the way of such industries, effectually precluded.

THE GRANT FOR THE MANCHESTER MUNICIPAL TECHNICAL SCHOOL.

AT the meeting of the City Council last week, Councillor Hoy moved the adoption of a recommendation of the Technical Instruction Committee that an application be made to the Local Government Board for power to borrow £150,000. for the erection of the new Municipal Technical School and other purposes of the Technical Instruction Acts. He said that £110,000. would probably be the sum required for the building, but in addition there would be a considerable amount required for the equipment and fitting of the new school. It was impossible to give an exact estimate, but there was very little doubt that before the school was thoroughly in working order a sum of £25,000. or £30,000. would be expended upon equipments. That brought up the total to, say, £135,000. There was a sum of £12,861. lying to the credit of their account as part of the profits of the Exhibition of 1887, and there were the two properties, that in Peter-street which was now

used as a weaving school, and which was valued at £10,000., and the property in Princess-street now used as a technical school, valued at £20,000., and a sum of £5,000. promised by the trustees of Sir Joseph Whitworth; so that, roughly speaking, and dependent upon the realisation of those properties, they had a contingent sum of £35,000., together with the sum of £12,800. already referred to. The committee, however, would be obliged to borrow the £35,000., because they could not realise the Peter-street and Princess-street properties until they had cleared out of them, which they could not do until the new school was equipped and in working order. He thought he might take upon himself to say that the total expenditure would not exceed, after those deductions were made, the sum of £90,000. or £95,000. For that sum they would secure this great advance in the educational facilities for the people of the city and district, and they would therefore use permanently nothing like the sum asked for. He pointed out that after the first year of their existence, when the committee spent something like £4,000. out of the rates, they had not infringed upon the money of the ratepayers. He thought the sum now asked for would give such facilities for the development of the industries of the district that future councillors would be delighted that their predecessors had had the courage to enter into this undertaking.

Councillor Rowley seconded the motion.

Councillor Tunstall said when this matter was before the Council a month ago he prophesied that the school would cost £110,000., but he was met with the remark "Nothing of the kind." The Council had now been informed that the cost would be £110,000., and that £25,000. would be required to furnish the school. He had great pleasure in moving as an amendment that the amount of the proposed loan be £100,000. instead of £150,000.

Councillor Richards seconded the amendment for the sake of discussion. He thought the Corporation were too generous in providing advantages for people who lived outside the city. Pupils would come from surrounding towns to the new Technical School. He thought the education provided by the School Board ought to be sufficient for all purposes. The Council knew perfectly well that the next precept of the School Board would be a large one, and would give rise to a discussion when it was presented.

Alderman Griffin said he believed in every child born being educated. (Laughter.) That was not the first time he had had the privilege of raising a laugh in Manchester. Whatever education he himself possessed was paid for honestly by his parents, which was more than some people in that Chamber could say. (Laughter, and cries of "Name.") It was not necessary to give any names. He knew to whom he was alluding, and let the gentleman for whom the remark was meant take it. He did not believe in taxing the ratepayers of the city for the education of any child beyond the three R's.

After some further discussion the amendment was rejected, and the resolution was agreed to.

THE ST. HELENS SEWAGE SCHEME.

THE provision of adequate arrangements for sewerage has always been the uppermost thought in the minds of all who have been interested in the health of St. Helens, and especially during recent years the question has received a good deal of attention. At the time when Dr. Spear recommended the adoption of the tub and pail system it came in for a good deal of consideration, and many were the speculations as to the best method of dealing with the sewerage after it had passed through the town, some members of the Corporation being in favour of the erection of outfall works at the Parr side of the borough boundary, which would, of course, involve a very large expenditure, and others being more in favour of the cheaper method of dealing with the sewage by running it into settling tanks and precipitating the solid matter, which could then be removed and dealt with. This latter, we believe, was the system which was being discussed at the latter end of 1891, by the Health Committee, who apparently felt that the other system was far too costly for the borough. It will be remembered that at the inquiry at the beginning of 1892, into the proposal for the extension of the borough boundaries, the question of sewerage occupied a prominent position, and as a matter of fact the Local Government Board, though assured by Dr. Robertson that the chemical matter in the brook rendered the sewage innocuous, declined to further consider the question until some provision was made for the purification of the sewage before being discharged into Sankey Brook. Dr. Robertson produced samples of water taken from the brook at a point before the sewage entered, and at a point after the sewage entered. These samples were forwarded to the Local Government Board, and their analyst, Dr. Franklyn, analysed them, and whilst it was admitted that the chemical and disinfecting contents of the Stinking Brook tended to retard, or, perhaps, altogether to arrest the putrefaction of the sewage discharged into the brook, objection was

taken to the present arrangement, because upon the contents of the brook becoming diluted with fresh or tidal water, the organic matter in suspension was liable to become putrescent. Dr. Robertson, the Assistant Medical Officer of Health, thereupon made a series of experiments, which showed that subsidence for a period of from four to six hours would cause the deposit of some 86 to 94 per cent. of the solid matter in suspension in the sewage without further chemical treatment than resulted naturally. Therefore, it was felt that a system of subsidence by means of settling tanks, would be quite ample to remedy what had been complained of, and would no doubt meet all the requirements of the Local Government Board. Armed with these facts, the sub-committee appointed by the Health Committee went to London and had an interview with the Local Government Board. The deputation were given to understand that the Board were anxious not to require from manufacturing towns, such as St. Helens, any expenditure that could properly be avoided, and that any scheme proceeding on the lines indicated would receive their more careful attention, and if possible their approval. Upon this understanding the Parliamentary Committee decided to recommend the Health Committee to consider the matter on lines laid down in September, 1891, and following upon this recommendation, we believe that at the last meeting of the Health Committee plans were submitted by the Surveyor (Mr. G. J. C. Broom, M.I.C.E.), for the further extension of the new sewer, and for dealing with the sewerage by means of subsidence. The committee approved of the plans submitted, and it was decided to place them before the Local Government Board.

THE LIVERPOOL MANURE TRADE IN 1892.

THE history of the market for manure material has been that of dragging trade and shrinking values. This must be attributed partly to the general depression in agriculture, but also largely to the further development of the mineral phosphate resources of Florida and South Carolina, and the fall in prices has probably been precipitated by the operations of "bear" speculators, who all through have been able to cover their forward sales with a good margin of profit. The prospect of 1893 is not very encouraging, but, starting as we do with a low range of prices, any important movement may reasonably be expected to be in an upward direction.

Mineral Phosphates.—The year opened quietly with 75/80% Florida rock nominally at 10d. per unit, Peace River 60%, at 9½d., and hot-air dried South Carolina River rock, 55/60%, at 9½d. per unit, in cargoes c.i.f. to United Kingdom, but not much business resulted. By end of January there were sellers all round at 9½d., but buyers showing very little disposition to operate. Quotations fell early in March to 8¼d. for Florida, 76/80%, and to 8d. for Peace River and South Carolina; by the end of March they had fallen to 8½d. and 7¼d. respectively. From April forward to October the value of 75/80% Florida alternated between 8½d. and 9d. per unit, falling to 8¼d. and 8d. in November, and closing in December at 7¾d. to 8d. per unit. Prices for Peace River and South Carolina between March and September were fairly well maintained at 7¼d. to 7½d., and 7d. to 7¼d. respectively, but in order to induce business, sellers had in October to give way about ½d. per unit, and a further ¼d. in November. Closing values were for Peace River about 6¾d., and for South Carolina about 6¼d. per unit.

Manufacturers, induced by low prices, are understood to have bought far ahead, and, with the uncertain future of the agricultural interest before them, and assured of ample supplies of mineral phosphates, they show no present disposition to increase their purchases.

Very little high grade Canadian rock has been shipped, prices obtainable being unremunerative. Considerable shipments of 60/65% Canadians have been made at about 6½d. per unit, delivered. Shipments of the higher grade Continental phosphates to United Kingdom continue on a diminishing scale; the lower grades still find a market in United Kingdom, but only at easy prices to compete with South Carolina phosphates.

River Plate Bone Ash is now very little used in United Kingdom, having been displaced by cheaper mineral phosphates. The value in spring was about £3. 15s. on 70% nett Hamburg terms; in July there were sellers at £3. 12s. 6d., in September at £3. 7s. 6d., in October at £3. 2s. 6d., in November at £3., and at the close of the year the value is not over £2. 17s. 6d.

River Plate Bones—Notwithstanding a falling off in shipments from River Plate by quite one-third as compared with previous year, prices on the whole have shrunk, but in nothing like the same ratio as those for mineral phosphates. The year opened with buyers at £4. 5s., but in February the value fell to £4. 2s. 6d., and remained at about that figure until July, when, owing to scarcity of cargoes afloat, and difficulty in securing suitable vessels on the River Plate, there was a recovery, and up to £4. 5s. was paid. The advance was maintained

until September, when £4. was again accepted, and that was nearest closing value for cargoes of handy size.

Crushed Kurrachee Bones.—Opening at £4. 11s. 3d. in January, price fell to £4. 7s. 6d. in March, to £4. 5s. in April, and to £4. 2s. 6d. in May. In July there was an advance to £4. 5s., but in August £4. 2s. 6d. was again the value, and in November £4. was accepted. Nearest closing value was £4. ex quay at Liverpool, in bags, gross weights.

Charring Bones have been in request on the Mersey throughout the year, and consequently have been relatively dear. Prices have ranged between £3. 17s. 6d. and £4. 10s. for good, clean, hard bones, and for this description, nearest value end of December was £4. 7s. 6d. ex quay, in bulk.

East Indian Bone Meal.—Shipments have been about on the same scale as those of recent years, and although the quality still varies very considerably, there has not been the adulteration with carbonate of lime so common in 1891 shipments. The market opened in January at £4. 10s. to £4. 15s. per ton according to quality, ex quay or store Liverpool. In February price fell to £4. 7s. 6d. for fair average quality, to £4. 5s. in March, and to £4. 2s. 6d. in May and June; the value of inferior quality meantime ranging between £4. 5s. and £4., and of finest quality between £4. 10s. and £4. 7s. 6d. During the second half of the year finest quality has ruled at £4. 10s. to £4. 7s. 6d., the latter being closing value ex store. Fair average quality has fluctuated between £4. 5s. and £4. for shipment, and nearest closing value for shipment was £4. 2s. 6d. ex ship Liverpool, London, or Glasgow, with very little disposition to purchase.

Nitrate of Soda.—The anticipations with which 1891 closed, based upon the restricted shipments, were doomed to disappointment. During January and February prices were maintained, but in the second half of March there was yet very little agricultural demand, whilst large shipments in January and February were known to have been made. Holders began to be alarmed, and spot price fell from 9s. 4½d. to 9s. 6d., to 9s. 1½d. and 9s. 3d. It was not until late in April that heavy deliveries commenced, by which time prices had fallen to 8s. 9d. and 8s. 10½d. It was too late, however, to enable sellers to recover lost ground, and prices continued to droop until about the middle of May, when, owing to heavy arrivals at coast, 7s. 9d. was reached. In June, when it became known that still greater restriction of shipments was contemplated to bring supply into relation to demand, there was a recovery, and 8s. 1½d. to 8s. 3d. became the spot price. During the autumn months, with the exception of the cholera scare period, when continental buyers were off the market, prices hardened gradually up to 8s. 3d. to 8s. 4½d., but it was not until October, when shipments showed a very marked falling off that buyers really began to believe much in the future of nitrate. When the mid-October figures arrived, prices advanced to 8s. 6d. and 8s. 7½d., and on receipt of those for end of October the value became 8s. 10½d. to 9s. During November and December the course of the market has been even, the shipments proving much as anticipated. At the close of the year spot price is 8s. 10½d. for inferior quality, and 9s. to 9s. 1½d. for good to refined. Due cargoes were worth 8s. 11½d. to 9s. 1½d., according to size and test. October shipments 9s. 1½d., November 9s. 3d., and December about 9s. 1½d.

Stocks at the end of December were:—

	1892.	1891.	1890.	1889.
In United Kingdom (tons) ..	20,000	23,000	25,600	30,400
Continent (tons)	182,100	191,600	165,500	162,000
	202,100	214,600	191,100	192,400
Afloat to Europe (tons)	215,000	325,000	515,000	382,000
Visible Supply	417,100	539,600	706,100	572,400

These figures indicated a very large falling off in visible supply, and notwithstanding that nitrate of soda is relatively dear as compared with sulphate of ammonia and other nitrogenous material, they point decidedly to higher prices as spring approaches. Should the spring season come early it seems certain that there will be an actual scarcity of nitrate in April. Should it be late the January shipments will be available, and will probably prevent any undue inflation of prices.

Miscellaneous materials. **Dried Blood.**—The year opened with a fair demand at 9s. 6d. to 9s. 9d. per unit of ammonia, f.o.r. at works, and these prices were fairly well maintained until July, when large sales of River Plate imports at 8s. 6d., and business of all export demand brought the price of home prepared down to 9s. per unit. Continued business of export demand, and sales of further River Plate imports at 8s. occasioned a further drop in value of home prepared, and in September 8s. 6d. was accepted. In December, however, a large export demand having arisen, the price advanced to quite 9s. 9d. per unit f.o.r. for anything near shipping port, and at the close of the year all stocks had been cleared out at equal to 9s. 9d. to 10s. per unit. Imports have been on a somewhat smaller scale than usual, there having been very little inducement to ship. **Ground Hoof and Horn.**—

There has been a moderate business doing, at from 9s. per unit in spring, down to 8s. 6d. for the remainder of the year, f.o.r. at works, and the latter was the nearest closing value. **Fish Guano** has had for the most part a rather dull sale, prices fluctuating between 8s. 9d. and 8s. 3d. per unit of ammonia, and 1s. 9d. phosphates, f.o.r. or f.o.b. at works. Closing value for fine quality was about 8s. 6d. and 9d. per unit for ammonia and phosphate of lime, respectively. **Kainit** being now worked exclusively through syndicate agents, prices have been arbitrary, and have fluctuated between 42s. 6d. and 45s., in bags, f.o.r. Liverpool or Garston, and the latter is closing value. **Superphosphates**, 26%, were maintained at 45s. per ton, in bulk, f.o.r. at works during the spring months, but owing to cheaper materials price was dropped in autumn to 40s., and that is present value.

Legal Intelligence.

ALLEGED WRONGFUL DISMISSAL.

In the Barnsley County Court recently, his Honour Judge Bedwell was engaged in hearing a series of cases arising out of the management of the gasmaking department of the Rockingham Gas and Chemical Works. Newton, Chambers, and Co. sued George Wright, late manager of the gasmaking department at the works, to recover 16s., rent of a house; and Wright counter-claimed against Newton, Chambers, and Co. to recover £48. os. 7d. for wrongful dismissal, and the company made a further claim of £37. os. 3d. against Wright for damages arising from his negligence.—Mr. Barstow (instructed by Mr. J. Carrington) was for the company; Mr. A. M. Wilson (Sheffield) for Wright.—Mr. Barstow said the action was brought against Wright to recover possession of a house occupied by him at their gasworks, 16s. being the rent up to the 14th October. Plaintiff claimed possession on these grounds. Defendant was the company's tenant in the terms of a contract of the 25th February, 1891, of which one clause was, "If the said George Wright shall at any time be dismissed from the service of the said company, then such dismissal shall, of itself, operate as a determination of the said tenancy." He was dismissed by the plaintiffs on the 4th September, and from that date plaintiffs became entitled to the possession. Defendant had counter-claimed in the form of damages for wrongful dismissal, and if he was wrongfully dismissed then, subject to any claim by the company for negligence, £48. os. 7d., the amount claimed, would be the amount due to him. Subsequently to defendant's counter-claim the company claimed damages against defendant for negligence, but in effect the whole question would be whether this man was rightly or wrongly dismissed.—Mr. Wilson said if the defendant was wrongfully dismissed the clause as to the termination of the tenancy would not apply.—Mr. Barstow said the defendant was employed by the company as contractor within the retort-house in the gasmaking department, he himself being the person who employed and paid every single workman engaged in that retort-house, and, subject to the general manager, had absolute authority within that house. Inside the retort-house were troughs supplied with water for use in quenching the coke when it was taken from the retort, and, having been quenched, it was carried outside to the heap of coke which at the time in question contained 800 tons. On the 3rd September, owing to the defendant's negligence, the appliances for supplying water to the troughs in the retort-house had been allowed to get out of order. One of the troughs which should have been supplied with water was empty. Defendant suggested it was not part of his duty to ensure the working order of the water-pipes. On that point plaintiffs joined issue with him.—Mr. Wilson said that was the real issue.—Mr. Barstow was prepared to accept that issue, but it was only a side issue, as it must be clear that any man entrusted with the duty of taking out coke from the retorts in a red-hot state, having outside a heap of 800 tons of coke adjacent to a tar well, tanks of oil and pitch, and other works containing materials of a highly inflammable nature, whether it was his duty or not to see that the water was supplied, it was obviously his duty to take care that coke was not taken to the heap in such a condition as to set the heap on fire. As a matter of fact the defendant, in the absence of the manager, did allow the coke to be wheeled out in such a condition that the coke heap was set on fire, and burnt from nine o'clock in the morning of the 12th September until two o'clock on the morning of the 13th September, and ten extra men were employed to put out the fire. There was much destruction of material and depreciation of the coke not burnt. If a man in a responsible position like the defendant allowed coke to be taken out in such a state as to set the heap on fire, he could not understand how it could be suggested that the general manager was not entitled to dismiss him. He said the dismissal was justified, and that such works could not be carried on with safety to life and property if the manager was not entitled to such a course as had been taken.—Mr. Thomas Smith, general manager, and other witnesses gave evi-

dence. The last agreement with the defendant was that of June 19 last, when he agreed for 2s. 1d. per ton of coke, to do the whole of the work in the retort house and coke lading in a workmanlike manner, from the commencement of putting the coal in, and any and every week that might occur, to the proper lading of the coke, and if anything occurred that he might consider outside his contract he was to do the work and consult afterwards as to the extra payment.—Mr. Firth, chemist, said whilst Mr. Smith was away defendant complained that the water pipes were becoming choked, and needed cleaning out. Witness told him to clear them out, but he said it was not his work. Witness named the matter in his report to Mr. A. M. Chambers, but nothing was done, and on the morning of the 12th September witness saw the coke heap was on fire, and three tanks were empty; four had water in.—For the defence it was submitted that the clearing of the pipes was part of the company's work, that defendant named it, and it was not done; that he made such arrangements for taking out the coke as seemed to him reasonable, and that he was not responsible for the fire.—His Honour gave a verdict for the defendant Wright.—There was a dispute as to what the agreement was. The fact that the pipes required cleaning was reported to Mr. Chambers, but no steps were taken, and the safety of the whole of this inflammable material hung on the question whether 3s. 3d. should be spent in cleaning pipes. He was satisfied that defendant made such arrangements as he thought would meet the difficulty, and a man could not be dismissed for disputing the terms of a contract.—Verdict for Wright on the plaintiff's claim against him for damages; following that, on the ejectment action they failed, as he had not been dismissed; and verdict for the defendant for £35. on the counter-claim, with costs.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supply to the city of London for the week ending December 31st, 1892, was, on the whole, good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed three deficiencies in illuminating power, one against each of the three companies respectively. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'28	12'30	0'23	Nil.
South Metropolitan Gas Co.	6	16'37	11'13	0'50	Nil.
Commercial Gas Co.	2	16'30	8'35	0'00	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

Paper Makers' Column.

THE CONSUMPTION OF WOOD PULP IN GERMANY.

THE Prussian Secretary of State has recently published an interesting report upon this industry. Scarcely any other branch of industry, says the report, has shown so rapid an extension as the manufacture of chemical pulp. Up to 1882 the greater number of mills still worked the soda process. After Dr. Mitscherlich's claim for a royalty on all pulp made by the sulphite process had been cancelled by the Law Courts, a great number of sulphite works were erected, and somewhat anticipated the expected greater consumption. The price of 42 mks. per 100 kilos. during the time of the monopoly went down to about half that figure, in spite of higher cost of wood and coal, and the introduction of the Compulsory Workmen's Insurance Fund.

This fall has caused a great number of mills to work without profit, and to lose even the interest on the capital invested. Those works that made arrangements with Dr. Mitscherlich realised large profits during the time of the monopoly, and therefore suffered from its abolition, but the trade as a whole derived a great benefit from this decision, which could in justice not have been otherwise. Nor could the Austrian and the Scandinavian competition have been prevented from seriously injuring the Prussian makers, both in foreign parts and in their own country.

The present production of chemical pulp is about 150,000 tons, of an estimated value of £1,700,000. One-third is exported and two-thirds consumed in the country. The wood necessary for this production is a million cubic metres, mostly pine. The number of workmen employed is about 8,000. Of the 150,000 tons of chemical pulp only 12,500 are soda, the remaining 137,500 being sulphite. As the production in 1889 was only 100,000 tons, it has been since increased by 50 per cent.

The exports comprise 5,000 tons of soda and 45,000 tons of sulphite. Of the 63 factories in operation in 1892, only 21 participate in the exportation, 21 consume their own pulp, and do not sell it, and 21 sell it in the country only.

Wood, coal, wages and freights are all factors which place the Germans at a very great disadvantage as compared with their Scandinavian competitors. Wood there costs half as much as in Germany, and fuel is very much cheaper. The late great rise in German coal has injured the German paper trade all the more, as Germany does not possess a water power at all to be compared with that of its rivals. A third disadvantage was the running up of wood prices. But even at normal wood and coal prices the Scandinavians still have the advantage. Wages are much lower there; nor has the Scandinavian maker to contribute to a Workmen's Insurance Fund, which costs the German chemical pulp industry £10,000. per annum.

Freights are also against the Germans. The steamers which bring the cheap English coal to Norway and Sweden take pulp back at very low rates, after it has been carried from inland works to the parts very inexpensively on the numerous canals. The saw mills offer their remnants as fuel at almost a nominal price to the pulp-maker.

Austria has also many advantages over Germany—cheaper wages, lower freights, and State assistance, which often shows itself in an exemption from taxation. Nor is the import duty high enough to prevent foreign pulp from coming into Germany. Considering the great advantages the foreign competition enjoys, the German pulp-makers ask for assistance through lower freights, both on raw material and on the pulp as well for inland sales as for exportation.

If in spite of all the disadvantages enumerated above, the German chemical pulp industry has been able to hold its own; this is simply owing to its superior quality, which it is stated is unrivalled for cleanliness, white colour, and great strength of fibre. So says this official report.

THE PROGRESS OF GERMAN INDUSTRY.

According to the *Statistische Jahrbuch des Deutschen Reiches*, German industry has made considerable progress during the last thirty years. Of raw iron during the years 1861-65 scarcely one million tons was consumed within the German Customs Confederation. At the present time the consumption reaches 48 million tons; it has, therefore, almost quintupled. The consumption of copper has risen from 18,000 tons in 1871 to 45,000 tons in 1890; tin from 3,500 to 8,500 tons; spelter from 34,000 to 90,000 tons; lead from 40,000 to 82,400 tons. The fuel required for industrial purposes rose from 44 million tons of coal in 1872-75 to 90½ million tons in 1890. The production of raw sugar in 1871 was 186,000 tons; in 1891 this was trebled. That of beer in 1871, 33 million hl.; in 1891, 52 million hl. That of salt in 1871, 463,000 tons, as against 953,000 tons in 1891. The cotton mills consumed in 1871 116,000 tons, in 1891 245,000 tons of raw material. In 1841 only 13,000 tons of raw cotton were consumed. In 1866-1870 the importation of Peruvian bark reached scarcely 400 tons; now it amounts to fifteen times that quantity, viz. to 6,000 tons. The importation of petroleum rose from 154,000 tons in 1871 to 675,000 tons in 1891. Of Chili saltpetre 34,000 tons were imported in 1871, as against 385,000 tons in 1891.

AN ALLEGED OBNOXIOUS OIL WORKS.

COUNCILLOR GIBSON drew attention last week at the usual meeting of the Manchester City Council to a report of the medical officer, referred to in the minutes of the Sanitary Committee, as to the proposed erection of an oil works in Erskine-street, Hulme, stating that the business, if allowed to proceed, would cause a nuisance. He (Mr. Gibson) desired to say, with a knowledge of the business, that no nuisance would be created thereby, and to protest against the unnecessary handicapping of commercial enterprise. The medical officer had never been seen at the place. This alleged objectionable place was opposite to his home, and it was not likely that if a nuisance were likely to be carried out he would support its erection. He moved that the portion of the proceedings of the committee dealing with the matter be referred back.

Alderman Robinson seconded the motion.

Councillor Dr. Aldred said he would support the committee, because this was not a case entirely of business being handicapped. The people in the neighbourhood might be handicapped. There must be proper supervision in the carrying on of such businesses. He should not like it to go forth from that Council that tradesmen could open any works they liked without supervision.

Councillor Gibson: This gentleman has been fifteen years in the district, and no objection has been made before.

Councillor Bagnall remarked that as an oil manufacturer himself he could say that no nuisance was caused. (Laughter.)

Alderman Smith said that in the absence of the report of the medical officer he would accept Mr. Gibson's motion.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

G.S.S.—Many thanks for your letter; we concluded you must be away.

J.M.—Thanks for intimation. It will be too late for the Special Issue, however.

H.P. AND Co.—Next week.

Z.P.M. AND Co. (Japan).—Through Kirkland, Cope and Co.

S. L.D.—The matter has been attended to. We thank you for calling our attention to it all the same.

K.P.T.T.—We have not received any reply as yet.

J.G.M.—We shall be pleased to hear from you again shortly.

J.W.P. Co.—Safe to hand.

W. AND Co.—We are much obliged for your explanation.

NOTICES.

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On usual trade terms.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

Trade Notes.

TO OUR SUBSCRIBERS.—Owing to the extra pressure entailed by the publication of our *Annual Special Issue* on January 21st inst., we beg to inform those of our readers who are anxious to bind Vol. XI., that the index and title page for that volume will appear with our issue of February 4th proximo.

A FOOLISH TRICK.—Two workmen employed at Clough Works, Sheffield, attempted last week to melt some frozen oil with a red-hot bar, and in so doing they set fire to the place, one of the workrooms being completely gutted before the flames could be got under.

NICKEL IN BRITISH COLUMBIA.—Two great deposits of nickel are said to have been discovered in the Kootanie district, British Columbia. The locality is easy of access, but the quality is not definitely known. The find has aroused much enthusiasm among the inhabitants of the neighbourhood.

ACCIDENT AT AN OIL WORKS.—A terrible accident occurred at an oil works in France last week. Ten workmen were employed piling up stacks of grain when the pile collapsed, burying the whole of them. Assistance was immediately procured, but five of the men were dead when extricated.

MESSRS. REDDAWAY AND Co.'S ANNUAL GATHERING.—The annual dinner given by Messrs. Reddaway and Co., Limited, belt and hose manufacturers, of Pendleton, was held recently. After several speeches, Mr. Reddaway distributed two prizes of £5, offered for the best hose and belt respectively, made by the employees during the year. Two similar prizes were promised for the present year. The proceedings concluded with dancing, which was continued till 2 a.m.

THE IRWELL RUBBER WORKS.—The new works of Councillor Isidor Frankenburg were opened recently, the opening being celebrated by a dinner which was given to the staff. Mr. Frankenburg gave a brief outline of how he established his first works at Greengate. Other speeches were made from which it would appear that the Irwell Rubber Works stand a good chance of soon being equal to, if not better, than those in Greengate.

THE SOCIETY OF PUBLIC ANALYSTS.—The annual dinner of the Society of Public Analysts was held last week at the Criterion Restaurant, under the presidency of Sir Charles A. Cameron, M.D., F.R.C.P., the newly-elected president. There was a representative company present. After the usual loyal toasts, the president proposed "The Society of Public Analysts," Mr. Otto Hehner responding said: Seventeen years ago they were densely ignorant. They knew nothing about the analysis of milk, butter, bread, or drugs, and exceedingly little about anything. The society had worked hard, and he thought they were in a very much better position now than they were then, and without that society, which had given stimulus to them all, they would not have reached their position.

CORPORATIONS AND THE SALE OF GAS STOVES.—A good deal of discussion took place at a recent meeting of the Manchester City Council, as to whether Corporations ought to sell gas stoves. It was contended that harm would be done to the ratepayers by the Corporation opening show-rooms for gas stoves. There were something like 400 ironmongers and plumbers who had been seriously affected by the plan of hiring out small gas stoves. The Committee actually sold these stoves for less than the ironmonger or plumber could afford to sell them, and in that way they became competitors. General opinion seemed to preponderate in favour of the proposed new premises to be opened by the Corporation being used solely for hiring, and not for selling purposes. The Chairman of the Gas Committee (Mr. J. Brooks) accepted the suggestion that the Committee should embody in a report their intentions in the matter. He assured the Council that no new business was intended.

ALUMINIUM HORSESHOES.—It is stated that aluminium horseshoes have been tried with remarkably successful results in the Russian army. According to the *Invalide Russe*, a few horses in the Finland Dragoons were first chosen and shod with one aluminium shoe and three iron shoes each; the former being on the fore foot in some cases, and on the hind in others. The experiments lasted six weeks, and showed that the aluminium shoes lasted longer and preserved the foot better than the iron ones. No aluminium shoes broke, and they were used over again for re-shoeing. The horses, moreover, were worked over hard and very stony ground. The most important fact of all is that aluminium horseshoes are only one-third to one-fourth the weight of iron shoes. Their cost is admittedly greater; but, on the other hand, very little charcoal is required in shoeing, there is no loss in weight, and the value of the old metal is the same as that of new.

RATING OF COLLIERIES AND BLAST FURNACES.—A group of appeals affecting some important properties of this character in Whitehaven Union has, after several adjournments, now been compromised. The main question, as to the rating of collieries, raised some very intricate points as to the principles upon which the shaft and surface works of the mine should be assessed, particularly where, as in one case, the whole of the coal was raised beneath the bed of the sea, and was therefore not rateable. The points in dispute with reference to the blast furnaces and coke ovens were of a different character, and refer more to the possibility of letting such property in the present depressed state of the iron trade. We understand that the appeals have been withdrawn in consequence of the Assessment Committee having offered concessions which the various appellants were advised to accept. The firms interested were Messrs. Sir James Bain and Company, Harrington, the Lonsdale Haematite Company, the Whitehaven Haematite Company, Cleator Moor, and the Whitehaven Colliery Company, who acted under the advice of Mr. Humphreys Davies, valuer to the Associated Manufacturers, and Mr. T. Brown, of Whitehaven, solicitor to the West Cumberland Iron Masters Association.

EMITTING BLACK SMOKE.—Last week the Lambeth Vestry summoned Messrs. J. Stiff and Sons, of the Potteries, High Street, Lambeth, for allowing certain chimneys on their premises to send forth black smoke in such quantities as to be a nuisance. Mr. H. J. Smith, clerk to the Lambeth Vestry, appeared in support of the summons. Mr. H. Treherne Wiggs, one of the inspectors in the service of the vestry, stated that he had on several occasions seen black smoke coming from the chimneys of the defendants' potteries. On December 8th

he served a notice upon the defendants to abate the nuisance, but on December 9th, 13th, and 30th, he again saw black smoke coming from their premises. In answer to the summons, Mr. Stiff reminded the magistrate that his firm had not been summoned at this court for some years, notwithstanding that their annual consumption of coal was between 5,000 and 6,000 tons. All their furnaces were fitted with smoke-consuming apparatus and were under the charge of skilled stokers. They had framed a code of regulations for the guidance of the men, and were continually warning their workmen, and sometimes dismissing them, for not carrying them out. Mr. Smith said he was told that the defendants had not adopted all the known methods of preventing black smoke. Mr. Biron made an order for the abatement of the nuisance, and directed the defendants to pay the costs, 10s.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market continues firm, and considerable sales have been made of most articles at advanced prices. The market is evidently recovering, and makers will be wise to look ahead.

The sulphate of ammonia market is steadily improving, and generally an advance of at least 2s. 6d. a ton is obtainable. There is not much offering, however, and should the demand still continue we shall probably see much better prices before the end of the month. There are eager buyers now at £10. 2s. 6d. at Liverpool, Hull, and Leith, but makers are asking £10. 3s. 9d., and even £10. 5s. has been mentioned as the price for early shipment. Beckton is still quoted at £10. 2s. 6d., but London outside makes have risen to £10. 3s. 9d., minimum.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil has realised last week's anticipations, and owing to the strong demand and shortness of supplies, has hardened in price to £25. spot for Lagos, and £24. 15s. to arrive. Soft oils proportionately dearer. Olive continues very firm with a fair demand, prices ranging from £35. 10s. to £42. per tun. Holders of linseed maintain their price, namely 19s. 6d. to 20s. 6d. in export casks; there has been a fair demand. The hardening of Liverpool refined cottonseed oil noted last week, has further developed, and prices have ruled at 20s. to 20s. 6d. per cwt. with a moderate business doing. Castor oil was rather unsettled at the end of last week, but prices have advanced again; good seconds Calcutta being worth 2½d., and first pressure French, 2½d. to 2½d. per lb. Tallow has a strong market with good prices, which are likely to advance again. Resin, common, during the early part of the week was slow of sale at 3s. 9d. To-day's value is 3s. 10½d. to 4s., but the demand still continues weak. Spirits of Turpentine have advanced, and 23s. 3d. to 23s. 6d. is quoted to-day; there is a strong market. Petroleum is in good demand; American, 5¼d. to 6¼d.; Russian refined, 4½d. to 4¾d. per gallon.

COLOURS.—Unaltered and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 55s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £12. to £23.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at 42s. 2½d. cash. Middlesbrough 35s. 9d. cash, and Hematite 46s. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £46. 2s. 6d. to £46. 3s. 9d. cash, and £46. 13s. 9d. to £46. 12s. 6d., three months. Tin firm. Straits closed at £91. 5s. to £91. 15s. cash, and £91. 2s. 6d. to £91. 12s. 6d. three months. Australian, £92 cash. English ingots, £94. 10s. to £95. Lead flat: Spanish, £9. 15s. English £10. Silesian spelter: Ordinary, £18. to £18. 2s. 6d. Quicksilver: First hands, £6. 5s., second hands, £6. 4s. 6d. Copper shares steady; Cape, 1½ to 1½. Copiapo, 2½ to 2½. Lilola 3½ to 3½. Mason and Barry, 2½ to 2½; Rio Tinto, 15½ to 15½; Tharsis, 4½ to 4½; Namaqua, ¾ to ¾; Panulcillo ¼ to ¾.

WOLVERHAMPTON, WEDNESDAY.—At the quarterly meeting to-day marked bar makers adhered to the reduction of 10s. per ton advised with the opening of January, but no further reductions were announced. Marked bars were £7. 10s., merchant bars £6. 10s., and common £5. 10s. These prices were a drop of 5s. on common and 7s. 6d. on merchant bars on last quarter day. Sheets, singles, were £6. 15s. to £7. Pigs a brisk inquiry but low prices. Coal strong.

GLASGOW, WEDNESDAY.—Market strong, with moderate business. Scotch done at 42s. 1d. and 42s. 2½d. cash, also at 42s. 2½d. and 42s. 3d. one month; closing with buyers at 42s. 2½d. cash, and 42s. 4d. one month, sellers ask ½d. more. Middlesbrough closes with buyers at 35s. 9d. cash, sellers ask 35s. 11½d. Hematite closes with buyers at 46s. cash; sellers ask 3d. more.

REPORT ON MANURE MATERIAL.

Since the turn of the year there has been more activity in the market, and the tendency of prices is rather in favour of sellers.

The nearest value of 75/80% Florida phosphate rock is probably 8d. per unit, in cargoes c.i.f. to good U.K. ports. There are still sellers of hot-air-dried South Carolina river rock at 6¼d., c.f. & i., for early shipments. Freight being easy, but for summer or autumn's shipment more money would have to be paid, shippers not caring to risk freights so far ahead.

The demand for cargoes of River Plate bones remains slack. The nearest value is about £4. 2s. 6d. per ton, delivered good U.K. ports. Crushed Kurrachee's offer at £4. per ton, now afloat, ex quay Liverpool. For shipment, £4. 2s. 6d. would be cabled out for East Indian bone meal, fair average quality, on spot, and £4. 5s. required ex store. There has been more doing in nitrate of soda on the Continent in the forward position, and the tone of the market has been somewhat improved. On spot the value of ordinary quality is 9s. per cwt., and that of fine test 9s. 1½d. Due cargoes are worth 9s. to 9s. 1½d., according to size and test; November sailings about 9s. 3d.; December's 9s. 1½d.; first half January 8s. 10½d.

The demand for dried blood for export continues, and long prices are being paid for high test.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade the position of the market has undergone little change in the past week. Bleaching powder is still firm, and in good demand at £7. 10s. nett, makers' works. For Leblanc makes of soda ash there is little variation in price, and for 58% alkali, the current quotations are 1½d. per degree, bags, or 1¼d. per degree, in casks, f.o.b. with usual rail allowances. Soda crystals are without alteration. For caustic soda the quotations are without change, viz., 77% f.o.b., Tyne, £11. 5s.; Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream 60%, £8. 5s., 10 ton lots and upwards. Recovered sulphur, £4. 5s. to £4. 7s. 6d., f.o.r. Chlorate of potash, 8½d., and still scarce for early deliveries, and firm in price for forward at 7½d. to 5¼d. per lb. according to period of delivery. Chlorate of soda, nominally 9d. per lb., but makers are fully sold for three months ahead. In acetates of lime there is no change to report, business on the whole being quiet. Acetate of soda in better request and prices unchanged. Litharge continues weak at £14. Foreign white sugar of lead is in small demand, and price is well maintained. Carbolic acid crystals, 39/40°, 7d. per lb. Liquid carbolic acid is quoted firm at 1s. 9d. to 1s. 10d. per gallon, and there is good enquiry for the same. Crude 60°, 2s. 2d. per gallon. Sulphate of copper, steady at £16. 10s., f.o.b. White powdered arsenic remains firm at £12. 10s. nett Garston, with good enquiry. Bichromate of Potash and soda moving fairly well at the convention prices. Borax weak at 29s. Yellow prussiate of potash, 9¾d. per lb. Oxalic acid, 3d. per lb.

THE LIVERPOOL MINERAL MARKET.

The market has ruled quiet. Manganese: Improved arrivals, which, however, will be suspended on account of severe winter, which has stopped mining and transport. Prices firm; with every prospect of an advance. Borate, 7½d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump): Fair demand; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): continues good for time of year, and prices firm; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals continue small; demand good, both for prompt and forward. "Angel White" brand and

"Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone: Good demand, and prices are firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal is much sought after, and prices are unaltered. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals show very little alteration in price, and demand only quiet with the exception of bleach, which is scarce and extremely firm at £7. 15s. net, softs; soda crystals, nominally £2. 12s. 6d. per ton; sulphur, £4. 10s. and £4. 12s. 6d. per ton.

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 15s. per ton; recovered sulphur, 2 cwt. bags, £4. 12s. 6d. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, in casks, £4. 5s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; hydrate of barium, £10. per ton net.

South Durham salt quiet at 10s. 1d. per ton f.o.b. Tees.

Coals are dull as far as the general demand is concerned and prices are drooping. Best Northumbrian steam, 9s. per ton; small steam, 3s. 3d. and 3s. 6d. per ton; best Durham gas coals vary in price from 7s. to 8s. per ton; bunker coals, flat; coke, steady, at about 15s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Some of the chemical works have resumed production, but not all, and a few find the interruption so acceptable under the circumstances that they will not fully open before next week. There have been several price changes on the beginning of the year, the most of them anticipated. Alum is 5s. cheaper, saltcake 2s. 6d., and all the strengths of caustic are quoted from 12s. 6d. to 15s. down. Soda crystals have further weakened, and even at the reduction are slow of movement. Bleaching powder, however, fully retains its firmness, being in increased enquiry, but without further rise as yet. Nitrate of soda is dearer. Sulphate of ammonia is, perhaps, a little firmer, and there are makers who will not do prompt business under £10. 2s. 6d., buyers' views, however, hardly touching that point as yet. It was bought towards the end of the week at £10., but doubtful if procurable anywhere at that now. The forward figure spoken of is £10. 5s., but with little, if anything, doing. In the mineral oil section there is a drop of about a farthing a gallon on burning oil for new business, but the bulk of the deliveries is *ex season's* contracts at the better value. There has been no further change in lubricants, nor in scale or wax, in which transactions have been pretty numerous.

Chief prices current are:—Soda crystals, £2. 7s. 6d. nett Tyne; soda ash, £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett. Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 74°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and

1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 30s.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% any port; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £10. to £10. 1s. 3d. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¾d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5½d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower; ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 54,691 bags.

New Companies.

J. W. Davis and Son, Ltd.—CAPITAL, £5,000. in £5. shares. The object of this company is to purchase and carry on the business of oil, paint, and varnish merchants, manufacturers, and drysalts, recently carried on by J. Davis and Son.

Swansea Valley Brick, Pottery, and Carburite Co., Ltd.—CAPITAL, £2,000. in £5. shares. The object of the company is to purchase and acquire land in Glamorgan for the purpose of manufacturing bricks, tiles, paint, lime, and Lloyd's carburite.

The Emerald Chemical Co—CAPITAL, £1,200 in 1,000 preference shares of £1., and 200 founders' shares of £1. each. This company has been formed to take over and work recipes for the manufacture of blackings, carbon compounds, and to manufacture soap and deal in chemicals.

Nentsbury Mining Co., Ltd.—CAPITAL, £6,000 in £25. shares. This company has been formed to work and search for lead and zinc ores and other minerals. The subscribers to the Memorandum of Association are:—J. Thompson, Stanhope, solicitor; T. Dickinson, Alston, mine owner; J. Thompson, Stanhope, farmer and miller; F. H. Thompson, Stanhope, mining apprentice; D. Thompson, Stanhope, engineer; A. W. Thompson, Stanhope, miller.

J. E. Hopkinson and Co.—CAPITAL, £20,000 in £1. shares. This company has been formed to carry on the business formerly carried on by J. E. Hopkinson and Co., as manufacturers of indiarubber, asbestos, and indiarubber goods. The subscribers to the Memorandum of Association are:—J. Uguhart, 150, Leadenhall-street, E.C., solicitor; J. M. Ruison, 15, Walbrook, E.C., engineer; J. Holman, 15, Walbrook, E.C., engineer; J. D. Foxcroft, 11, Queen Victoria-street, E.C., accountant; F. H. Frigott, Brockley, gentleman; H. H. Newman, Walthamstow, gentleman.

National Explosives Co., Ltd.—CAPITAL, £200,000 in £1. shares. The object of the company is to manufacture and deal in dynamite, nitro-glycerine, and explosives of all kinds. The subscribers to the Memorandum of Association are:—A. Thorne, 16, Philpot-lane, E.C., gentleman; D. H. Shilson, St. Austell, banker; S. H. Shilson, St. Austell, banker; C. Shilson, Bembridge, I.W., clergyman; R. Ryley, 88, Bishopsgate-street, E.C., gentleman; O. Guttman, 110, Adelaide-road, N.W., C.E.; G. H. Perks, Walthamstow, manufacturer; S. Wesby, 27, Mincing-lane, E.C., merchant; W. Marden, 14, Fenchurch-street, shipbroker.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR LETTERS PATENT.

Improvements in the Manufacture of Sulphate of Copper. G. F. Strawson and W. Fream. 23,342. December 19.
Washing Smoke. T. Critchley and F. Hewitt. 23,347. December 19.
Flexible Metallic Tubing. O. Imray. 23,375. December 19.
Manufacture of Explosives. O. Imray. 23,377. December 19.
New Basic Colouring Matters. J. Y. Johnson. 23,397. December 19.
A New Process for Separating Solid and Liquid Substances Dissolved in Alcohol, etc., without Evaporation of the Solvent. W. Weitenkamp. 23,398. December 19.
Treating Wood and other Materials Thermically, Thermochemically, and Chemically. J. S. Williams. 23,404. December 19.

Decomposing Marine Salt with Hydrated Silica and its Alkaline Combinations. B. Paul. 23,417. December 20.
 Manufacture of Gas. J. Gray. 23,419. December 20.
 Obtaining Phenoles and Naphtholes from Salicylic Acid, etc. H. Byk. 23,449. December 20.
 Coating Aluminium with Tin. R. Haddan. 23,476. December 20.
 Soldering Aluminium. R. Haddan. 23,477. December 20.
 Improvements in Wood Pulp Digesters. T. Thornley. 23,518. Dec. 21.
 Purification of Iron. E. H. Saniter. 23,534. December 21.
 Manufacture of Litharge, Red Lead, and Cement from Galena or Sulphate of Lead. W. S. Kilpatrick. 23,548. December 21.
 Apparatus for Testing for Water in Butter, etc. G. R. Geldard. 23,557. December 21.
 Manufacture of White Lead. S. Z. De Ferranti and J. H. Noad. 23,572. December 21.
 New Material for obtaining Oxygen from the Air. H. Weymersch. 23,577. December 21.
 Improved Compound for Treating Sewage. C. A. Burghardt. 23,601. December 22.
 Coating Paper with Aluminium and its Alloys. W. Ibbotson. 23,603. December 22.
 Production of Caustic from Sulphide of Sodium or Sulphydrate or Sodium, partly applicable to the Manufacture of Bicarbonate of Soda and Soda Ash. F. H. Gossage and J. Williamson. 23,616. Dec. 22.
 Production of Amine Bases from the Ferruginous Residue left in the Production of Amine Bases. S. S. Bromhead. 23,639. December 22.
 Manufacture of Colouring Matters. H. H. Lake. 23,672. December 22.
 Improvements in Paper Making Machines. R. W. Moncrieff. 23,732. December 23.
 Improved Apparatus for the Manufacture of Chlorine and Alkali by Electrolysis. E. T. Parker. 23,733. December 23.
 Apparatus for Removing Boiler Scale. H. Baschy. 23,752. December 23.
 Cleansing and Purifying Foul Casks. O. Tilley. 23,764. December 24.
 Generating Gas from Hydrocarbon and other Oil. F. G. Birchall. 23,765. December 24.
 Improvements in Artificial Stone. A. Browne. 23,771. December 24.
 Electric Smelting Furnaces. R. Niewerth. 23,773. December 24.
 Improvements in Electro Plating. S. O. Cowper-Coles and The London Metallurgical Co., Ltd. 23,788. December 24.
 Producing Fresh Water from Salt Water. A. Normandy. 23,821. Dec. 24.
 Heating Liquids to a given Temperature. E. Broderick and L. Broderick. 23,838. December 24.
 Manufacture of Artificial Fuel. J. Speir. 23,847. December 24.
 Improvement in Drying Plant. W. V. V. Lidgeriwood. 23,850. Dec. 24.
 Improvements in the Manufacture of Soda Crystals, Bicarbonate of Soda and Sodium Carbonate. H. Watson and J. R. Watson. 23,853. December 27.
 Improvements in Filter Pumps. W. E. Caddell. 23,867. December 27.
 Ascertaining the Volume of a particular Gas in a Gaseous Mixture and ascertaining the Weight of Gases. M. Arndt. 23,876. December 27.

Joining Seams of Waterproof Garments. J. Burnett. 23,883. Dec. 27.
 Production of Paramagenta. O. Imray. 23,893. December 27.
 Manufacture of Yeast without Alcohol. M. Krouchkoll. 23,894. Dec. 27.
 Refrigerating Fluids, more particularly Cold Air. E. Theisen. 23,908. December 27.
 Electrolytic Apparatus. T. Craney. 23,919. December 27.
 Preventing Pipes bursting by Frost. E. Morand. 23,921. December 27.
 Prepayment Mechanism for Gas Meters. T. Thorp, T. G. Marsh, and J. Haynes. 23,924. December 28.
 Miners' Safety Lamps. J. E. L. McLachlan. 23,927. December 28.
 Improved Apparatus for Making Bisulphite of Lime. H. H. Lake. 23,965. December 28.
 Self Registering Thermometers. F. Cossor. 24,037. December 29.
 Treating Phosphates and other Materials occurring in Calcareous or Argillaceous Matrices. J. G. Lorrain. 24,038. December 29.
 Improvements in the Manufacture of Bicarbonate of Soda by the Ammonia Soda Process, and obtaining a valuable Bye Product. J. Vivian and G. Bell. 24,040. December 29.
 Plating Aluminium or Aluminium Alloys. G. Wegner and P. Guhrs. 24,061. December 30.
 Vertical Tanks for the Precipitation of Sewage. E. W. Ives and C. T. L. Bristow. 24,066. December 30.
 Apparatus for Sterilising Water. V. Babes and A. Babes. 24,080. Dec. 30.
 New Colouring Matters. J. Kohner. 24,081. December 30.
 Manufacture of Cyanide and Cyanogen Compounds. J. D. Gilmour. 24,116. December 31.
 Treatment of Natural Gums to produce Rubber or Rubber Substitute. H. Hellewell. 24,135. December 31.
 Separation of Gold from its Chloride Solution. J. W. Sutton. 24,144. December 31.
 Recovery of Oil and other Lubricants used in the Cylinders of Steam Engines and the like. C. V. Bennett. 24,151. December 31.
 Making Train and other Oils by the aid of Compressed Oxygen. E. Opperbeck. 24,153. December 31.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

H. C. POWELL and W. H. BROCKSOPP, under the style of the Shropshire Oil and Manure Co., Stirchley, oil and artificial manure manufacturers.
 N. MATHIESON, F. H. GOSSAGE, T. S. TIMMS, and T. T. MATHIESON, under the style of N. Mathieson and Co., Widnes, alkali manufacturers.
 R. A. LAING, R. WILSON, S. OKELL, and J. W. HAMPSON, under the style of J. Laing, Son and Co., Manchester and Huddersfield, drysalers, dyers, and merchants, as far as regards J. W. Hampson.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

CATFORD, EDWIN WALTER (trading as E. W. Catford and Co.), Clifton and Mincing Lane, E.C., sugar and brewers' saccharum merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 31st.

Acetate of Lime—
 U. States, 518 pkgs. H. Wallace & Co.
Acetic Acid—
 Holland, 156 pkgs. A. & M. Zimmermann
 " 30 Phillipps & Graves
Alkali—
 France, 210 c. Arnati & Harrison
 Holland, 5 L. & I. D. Jt. Co.
Alum—
 Holland, 28 pkgs. Ohlenschlager Bros.
Aluminium—
 U. States, 17 c. Bailey & Leatham
Antimony—
 France, 2 t. B. & F. Wf. Co., Ltd.
 N. Zealand, 27 James & Shakespeare
Asbestos—
 Italy, £75 A. H. Smith
 U. States, 2,000 T. Ronaldson & Co.
 Germany, 25 Becker & Ulrich
 U. States, 90 L. & I. D. Jt. Co.
Barytes—
 Germany, 111 cks. W. Harrison & Co.
 Holland, 75 Comp. Maritime Belge
 " 75 A. Zumbeck & Co.

Borate of Lime—
 Persia, 837 pkgs. L. & I. D. Jt. Co.
Caoutchouc—
 France, 3 c. Flageollet & Co.
 E. Indies, 31 Butler's Wf., Ltd.
 " 83 Prop. Bull Wf.
 Zanzibar, 22 Hopkins, Ford, & Co.
 Madagascar, 46 Procter Bros.
 Penang, 71 L. & I. D. Jt. Co.
 France, 189 Anderson, Weber, & Smith
 Singapore, 56 Prop. Bull Wf.
 " 100 Huttenbach & Co.
Castor Oil—
 Germany, 1 cs. T. Christy & Co.
 E. Indies, 375 Montgomerie & Co.
 Italy, 10 L. & I. D. Jt. Co.
Caustic Potash—
 France, 21 pkgs. H. Briscoe & Co.
Caustic Soda—
 France, 90 c. L. & I. D. Jt. Co.
Chemicals (otherwise undescribed)
 Italy, 17 pkgs. Italo-Brit. S. N. Co.
 Germany, 42 T. H. Lee
 " 7 L. & I. D. Jt. Co.
 " 9 A. & M. Zimmermann
 " 5 £71. W. Burton & Sons
 Holland, 37 R. Morrison & Co.

Belgium, £327 A. B. Curtis & Co.
 " 20 C. Atkins & Nisbet
 Germany, 22 H. Lambert
Copper Sulphate—
 Norway, 52 pkgs. Major & Field
Cream of Tartar—
 France, 5 pkgs. M. Ashby, Ltd.
 Holland, 60 Middleton & Co.
Dyestuffs—
Argols
 Patras, 20 pkgs. P. A. Gavas
Cochineal
 Canaries, 8 pkgs. G. S. Bruce
 " 18 Johnson, Hicks, & Co.
 " 20 F. Huth & Co.
 " 13 Marshall & French
Extracts
 U. States, 25 pkgs. L. & I. D. Jt. Co.
 France, 100 L. J. Levinstein & Sons
 Belgium, 11 H. Johnson & Sons
 " 23 Arnati & Harrison
 " 51 Sawyer, Mead, & Co.
 Germany, 24 Elkan & Co.
 France, 340 Prop. Chamblin's Wf.
 Denmark, 2 R. J. Fullwood & Bland
Gambier
 E. Indies, 486 pkgs. Brown & Elmslie
 " 1,311 Adamson, Gilfillan, & Co.
 " 692 L. & I. D. Jt. Co.

Singapore, 224 Beresford & Co.
 " 424 R. & J. Henderson
 " 506 Brown & Elmslie
 E. Indies, 170 R. & J. Henderson
Indigo
 E. Indies, 67 chs. Ross & Deering
 " 25 bxs. Darling Bros.
 " 35 Wallace Bros.
 " 5 E. Bower & Co.
 U. States, 9 Ripley, Roberts, & Co.
 E. Indies, 50 L. & I. D. Jt. Co.
 " 20 H. Johnson & Sons
 " 8 Ralli Bros.
Orchella
 Portugal, 180 pkgs. Prop. Bull Wf.
Sumac
 Italy, 200 pkgs. M. D. Co.
 " 400 Beresford & Co.
 " 150 Sollas & Sons
Tanners' Bark
 Natal, 38 t. Baxter & Hoare
 U. States, 5 W. H. Bowditch
 France, 3 Arnati & Harrison
Turmeric
 E. Indies, 120 pkgs. Hoare, Wilson, & Co.
 Japan, 6 L. & I. D. Jt. Co.
Valonia
 Greece, 20 t. Parbury & Co.
 A. Turkey, 20 pkgs. M. D. Co.

Farina —			
Germany,	50 pkgs.	Prop. Chmbln's Wf.	
"	100	Prop. Scott's Wf.	
Holland,	100	R. G. Hall & Co.	
Glucose —			
U. States,	250 pkgs. 250 c.	J. Barber & Co.	
"	50	300 c. Fuerst Bros.	
"	2,000	2,000 Union L. Co., Ltd.	
Germany,	800	800 Baxter & Hoare	
"	30	234 Prop. Chmbln's Wf.	
"	5	16 F. Stahlschmidt & Co.	
France,	550	550 J. Barber & Co.	
U. States,	50	306 R. G. Hall & Co.	
"	500	500 Barrett, Tagant, & Co.	
Guano —			
Sweden,	50 t.	G. Ward & Sons	
Hypsulphites —			
Holland,	14 pkgs.	Dicketts & Co.	
Iodine —			
Iquique,	157 pkgs.	A. Gibbs & Sons	
France,	53	"	
Lead Acetate —			
Germany,	8 pkgs.	F. Boehm	
"	8	T. Palmer	
France,	10	F. Smith	
Manure —			
Germany,	10 t.	R. W. Greeff & Co.	
"	5	T. H. Lee	
"	50	Perkins & Homer	
E. Indies,	148	A. Hunter & Co.	
Methyl Alcohol —			
Germany,	12 cks.	Stein Bros.	
Belgium,	7	W. G. Blagden	
Mica —			
U. States,	£70	Knight & Morris	
Ochre —			
France,	9 brls.	Hemingway & Co.	
Paint —			
U. States,	160 brls.	Beresford & Co.	
Painters' Colours —			
Germany,	8 pkgs.	T. H. Lee	
"	9	6 cs. Phillips & Graves	
"	8	W. Harrison & Co.	
France,	9	Flageollet & Co.	
U. States,	5	Pinchin, Johnson, & Co.	
Germany,	4 cks.	Prouk, Davis, & Co.	
Holland,	4	T. Palmer	
Germany,	13	L. & I. D. Jt. Co.	
Belgium,	14	T. Palmer	
"	109	Sawer, Mead, & Co.	
Germany,	8	17 H. Lambert	
"	10	J. Kitchin, Ltd.	
France,	1	Bennett S.S. Co., Ltd.	
Holland,	2	Phillips & Graves	
Italy,	11	W. Harrison & Co.	
U. States,	107 pkgs.	A. Hughes	
Paraffin Wax —			
U. States,	145 brls.	C. Ogleby & Co.	
"	615 pkgs.	H. Hill & Sons	
"	70 bgs.	Williams, Torrey, & Co., Ltd.	
Phosphate —			
U. States,	£35	A. F. White & Co.	
Phosphate Rock —			
Germany,	150 t.	London Phosphate Syndicate	
Belgium,	50	B. Jacob & Sons	
Phosphoric Acid —			
Germany,	25 pkgs.	Phillips & Graves	
Pitch —			
France,	87 brls.	C. B. Leighton	
Belgium,	5 cks.	Poth, Hille, & Co.	
Plumbago —			
Germany,	6 cks.	T. H. Lee	
Ceylon,	347 brls.	J. Thredder, Son, & Co.	
"	199	Beresford & Co.	
"	170	N. S. S. Co., Ltd.	
Potash —			
France,	118 c.	Petri Bros.	
Potassium Carbonate —			
Germany,	14 pkgs.	Beresford & Co.	
Holland,	27	Spies Bros. & Co.	
"	34	A. & M. Zimmermann	
"	52 c.	A. J. Luke & Co.	
Potassium Chloride —			
Holland,	11 pkgs.	H. Johnson & Sons	
Potassium Sulphate —			
France,	107 pkgs.	Petri Bros.	
"	300	F. W. Berk & Co., Ltd.	

Pyrites —			
Spain,	500 t.	Societe Commerciale	
Rosin Oil —			
France,	350 brls.	C. Price & Co.	
Saltpetre —			
Chili,	22,312 bgs.	W. Montgomery & Co.	
E. Indies,	1,164	Brown & Elmslie	
Chili,	44,624	F. Huth & Co.	
Germany,	410	C. Wimbly & Co.	
"	121 cks.	P. Hecker & Co.	
Soda —			
Belgium,	9 cks.	Magee, Taylor, & Co.	
Soda Ash —			
Belgium,	1,280 c.	Williams, Torrey, & Co., Ltd.	
Sodium Acetate —			
Belgium,	8 pkgs.	Leach & Co.	
France,	9	S. F. Waters & Co.	
"	15	H. Wallace & Co.	
Sodium Carbonate —			
Germany,	1 cs.	L. & I. D. Jt. Co.	
Sodium Hypsulphite —			
Holland,	14 pkgs.	Beresford & Co.	
Sodium Nitrate —			
Germany,	9 pkgs.	C. Faust & Co.	
Stearine —			
Holland,	31 bgs.	Robinson, Roberts, & Co.	
France,	387	Beresford & Co.	
Belgium,	248	H. Hill & Sons	
Sulphur —			
Italy,	5 t.	J. Puddy & Co.	
"	3	A. Hughes	
"	20	Union L. Co., Ltd.	
"	10	Windschuegl & Co.	
Superphosphate —			
Belgium,	£300	Coml. L. Co.	
Talc —			
Adelaide,	£10	Harrold Bros.	
Tallow —			
Queensland,	19 cks.	Goldsbrough, Mort, & Co.	
N. Zealand,	15	Low, Sons, & Bedford	
Belgium,	5	H. Hill & Sons	
"	15	Sawer, Mead, & Co.	
Queensland,	237	Sollas & Sons	
Tasmania,	19	Beresford & Co.	
N. Zealand,	3	A. Tremearne & Co.	
"	13	Hoare, Wilson, & Co.	
"	16	Culverwell, Brooks, & Co.	
Queensland,	163 cks.	Phillips & Graves	
"	84	L. & I. Dk. Co.	
Tartaric Acid —			
France,	40 pkgs.	W. C. Bacon & Co.	
Holland,	8	Middleton & Co.	
"	1	J. Owen	
"	1	Domeier & Co.	
France,	20	B. & F. Wf. Co., Ltd.	
Turpentine —			
Germany,	6 pkgs.	B. & N. Wf. Co., Ltd.	
Ultramarine —			
Germany,	22 cs. 4 cks.	G. Steinhoff	
Belgium,	24	Arnati & Harrison	
Holland,	5	Hernu, Peron, & Co.	
Yarnish —			
U. States,	27 pkgs.	Pinchin, Johnson, & Co.	
"	30	Williams, Torrey, & Co.	
"	1	Rosenberg, Loewe, & Co.	
White Lead —			
Holland,	51 cks.	Magee, Taylor, & Co.	
"	38	A. & M. Zimmermann	
U. States,	121 pkgs.	W. Green	
Germany,	29	G. Clifford	
Holland,	47	T. & W. Farmiloe	
"	14	W. Taylor, jun., & Co.	
Germany,	10	H. Lambert	
Zinc Oxide —			
Germany,	25 brls.	M. Ashby, Ltd.	
Holland,	25	Burrell & Co.	

LIVERPOOL.

Week ending December 29th.

Asbestos —			
Ghent,	4 cs.		
Portland, M.,	500 bgs.		
Borate of Lime —			
River Plate,	60 bgs.	Lampport & Holt	
Caoutchouc —			
Havre,	22 pkgs.	W. H. Stott & Co.	
Castor Oil —			
Marseilles,	124 brls. 50 cs.		
"	28	J. J. Mack & Sons	
"	6	E. Boulbee & Co.	
"	4	W. H. Jackson	
"	5	Evans & Roberts	
Chemicals (otherwise undescribed)			
Rouen,	34 cks.	Co-op. W'sale Society, Ltd.	
Colours —			
Rotterdam,	22 cks. 11 cs.		
Bombay,	1		
Hamburg,	35		
Cream of Tartar —			
Bordeaux,	1 ck.		
Marseilles,	20 brls.		
Dyestuffs —			
Argols			
Patras,	39 cs. M. D. Frangopulo & Co.		
Bordeaux,	37 cks.		
Cochineal			
Gr. Canary,	10 bgs. 10 sks. Sperling & Williams		
"	14	Duranty & Son	
"	5 sks.	S. L. Behrens	
Las Palmas,	15 bgs. Widow Duranty & Son		
Cutch			
Rangoon,	6,008 bxs.		
Extracts			
New York,	10 brls. 112 bxs.		
Halifax,	120 cks. Boucher Bacon & Co.		
New York,	20	J. Singleton	
Marseilles,	20	20 brls.	
New York,	30 kgs.	A. J. White	
Fiume,	278 brls.		
Trieste,	195	G. Pagan	
Bordeaux,	250 cks.		
Dunkirk,	10 cs.		
Baltimore,	6 brls.	Houston & Laurish	
"	50	Mucklow & Co.	
Antwerp,	100 cks.		
Gambier			
Singapore,	854 bls.		
Indigo			
Kurrachee,	43 cs.		
Bombay,	72	Forbes, Forbes & Co.	
Madder			
Rotterdam,	1 ck.		
Myrabolams			
Bombay,	660 bgs. A. Salmen & Co.		
"	1,499		
Sumac			
Trieste,	163 bgs. F. Steiner & Co.		
Palermo,	50	J. Kitchin, Ltd.	
"	103	200 bls.	
Valonia			
Corfu,	12 bgs.		
Farina —			
Fiume,	150 sks.	C. J. Vander Veen & Bro.	
"	100	Manchester Ship Canal	
"	200		
Glucose —			
New York,	100 brls.	T. M. Duche & Son	
Hanburg,	50 cks.		
Iodine —			
Valparaiso,	102 brls.	Norwerk, Gebruder & Co.	
"	18		
Iron Oxide —			
Trieste,	27 cks.	Gabain Bros.	
Lead Acetate —			
Stettin,	15 cks.		
Rouen,	34	R. J. Francis & Co.	
Linseed Oil —			
Malta,	2 brls.		
Manganese —			
Huelva,	385 t.		
Caldera,	qty.		
Coquimbo,	"		
Ochre —			
Marseilles,	33 brls.		
Rouen,	15 cks.	R. J. Francis & Co.	
Paint —			
Boston,	10 cs.	H. Lovett	
Amsterdam,	6		
Philadelphia,	90 brls.	J. E. Payne	

Paraffin Scale —			
Baltimore,	245 brls.		
Philadelphia,	1,160		
Potash —			
Rouen,	4 cks.	R. J. Francis & Co.	
"	73 dms. 122	Co-op. W'sale Society, Ltd.	
Dunkirk,	2	33 dms.	
Potassium Carbonate —			
Stettin,	123 cks.		
Pyrites —			
Huelva,	3,378 t.	Matheson & Co.	
Quicksilver —			
Gijon,	154 brls.	A. Ruffer & Son	
Rosin —			
Marseilles,	5 cs.		
Baltimore,	200 brls.		
Hamburg,	6 cs. 10 bgs.		
New York,	1,128 brls.	R. Crooks & Co.	
Salt —			
Hamburg,	4 bgs.		
Saltpetre —			
Kurrachee,	317 bgs.		
Hamburg,	2 brls. 70 kgs.		
Soap —			
Marseilles,	59 cs. 155 bxs.		
Philadelphia,	2		
N. Orleans,	2,000 brls.		
Soapstone —			
Bordeaux,	100 bgs.	G. G. Blackwell	
Soda —			
Rotterdam,	100 brls. 2 cks.		
Sodium Acetate —			
Antwerp,	10 cks.	J. T. Fletcher & Co.	
Stearine —			
Baltimore,	200 tcs.		
Sulphur —			
Huelva,	1,077 t.	Matheson & Co.	
Tallow —			
B. Ayres,	27 pps. W. B. Dickinson		
New York,	120 tcs. 528 bds.		
Boston,	25	G. Vandenhoe	
Baltimore,	75		
Philadelphia,	03		
New York,	20	Larrinaga & Co.	
Tartar —			
Bordeaux,	6 cks.		
Tartaric Acid —			
Bordeaux,	20 cks.		
Bilbao, 32 brls.		Novelli & Co.	
Rotterdam,	38		
Ultramarine —			
Rotterdam,	7 cks. 31 cs.		
Hamburg,	15		
White Lead —			
Rotterdam,	54 cks.		
Antwerp,	18		
Zinc Ashes —			
Antwerp,	9 cks.	J. T. Fletcher & Co.	
Zinc Oxide —			
Rotterdam,	55 cks.		
Antwerp,	45 brls.		

HULL.

Week ending December 31st.

Acid —			
Rotterdam,	2 cks.	Hutchinson & Son	
Alkali —			
Bremen,	4 cks.	Veltmann & Co.	
Alum —			
Rotterdam,	126 cks.	W. & C. L. Ringrose	
Aluminium —			
Rotterdam,	1 cs.	W. & C. L. Ringrose	
Asbestos —			
Reval,	518 bgs.		
Flushing,	4 bls.	Zeeland S. S. Co.	
Barytes —			
Riga,	130 cks.	Wilson, Sons & Co., Ltd.	
Rotterdam,	1 cs.	W. & C. L. Ringrose	
Antwerp,	99 cks. 40 bgs.		
Bremen,	23	Veltmann & Co.	
Caoutchouc —			
Hamburg,	9 cs.	C. M. Lofthouse & Co.	
Chemicals (otherwise undescribed)			
Rotterdam,	5 cks.	W. & C. L. Ringrose	

Flushing, 7 Gotenburgh, 1 cs.	Zeeland S. S. Co. Wilson, Sons & Co., Ltd.
Bremen, 1 ck. 1	Veltmann & Co.
Colours— Flushing, 7 cs. 4 cks. 235 pks	Zeeland S. S. Co.
Rotterdam, 6	G. Lawson & Sons
" 8 cs. 6	Hutchinson & Son
" 64 pks.	W. & C. L. Ringrose
Dextrine— Stettin, 200 bgs.	Wilson, Sons & Co., Ltd.
Dyestuffs— Alizarine Rotterdam, 1 bx. 13 brls.	Hutchinson & Son
Indigo Amsterdam, 3 chts.	W. & C. L. Ringrose
Sumac Palermo, 50 bgs.	Wilson, Sons & Co., Ltd.
650	
Tannin Hamburg, 1 cs.	Wilson, Sons & Co., Ltd.
Farina— Stettin, 200 bgs	Wilson, Sons & Co., Ltd.
Harlingen, 850	
Hamburg, 150	G. Lawson & Sons
Groningen, 350	
Glucose— Stettin, 30 cks.	Wilson, Sons & Co., Ltd.
" 950 bgs.	
Guano— Christiansund, 750 sks.	Wilson, Sons & Co., Ltd.
Naphtha— Rotterdam, 15 cks.	W. & C. L. Ringrose
Phosphate— Ghent, 200 t.	
Pitch— Rouen, 57 brls.	
Potash— Antwerp, 3 dms.	Wilson, Sons & Co., Ltd.
Pyrites— Huelva, 1,783 t.	
Saltpetre— Hamburg, 20 bgs.	G. Lawson & Sons
Antwerp, 135 bgs.	Wilson, Sons & Co., Ltd.
Soda— Hamburg, 3 bgs.	
Sodium Nitrate— Rotterdam, 12 cks.	Hutchinson & Son
Stearine— Amsterdam, 124 bgs	Wilson, Sons & Co., Ltd.
Antwerp, 12	
Rotterdam, 12	Hutchinson & Son
Sulphur— Catania, 189 pks.	Wilson, Sons & Co., Ltd.
" 200 50 t.	
Talc— Trieste, 20 bgs.	
Tin Oxide— Rotterdam, 5 cks.	G. Lawson & Sons
" 2	Hutchinson & Son
Ultramarine— Bremen, 10 cks.	
White Lead— Rotterdam, 29 cks.	Hutchinson & Son
GLASGOW. <i>Week ending January 5th.</i>	
Acetate of Lime— New York, 725 bgs.	
Alkali— Hamburg, 173 cks.	
Barytes— Rotterdam, 89 cks.	
Castor Oil— Calcutta, 2,675 cs.	
Marseilles, 25 437 brls.	
Antwerp, 55 cks.	
Colours— Rotterdam, 20 cks.	J. Rankine & Son
Cottonseed Oil— New York, 50 brls.	
Cream of Tartar— Marseilles, 22 brls.	
Dyestuffs— Alizarine Rotterdam, 153 cks.	
" 42	J. Rankine & Son
Cutch Calcutta, 1 bg.	
Extracts New York, 30 bgs.	
Fiume, 125 brls.	
Indigo Calcutta, 80 chts.	
Rotterdam, 12	J. Rankine & Son
Sumac Fiume, 50 bls.	Young & Strang
50	
Turmeric Calcutta, 200 bgs.	
Farina— Antwerp, 40 bgs.	
French Chalk— Fiume, 100 bgs.	P. M'Intosh & Co.
Glucose— New York, 600 brls.	
Philadelphia, 100	
Ochre— Rouen, 6 cks.	
Marseilles, 90 brls.	
Paraffin Scale— Philadelphia, 1,500 brls.	
Phosphate of Lime & Rock— Ghent, 1,500 bgs	
Potash— Rouen, 4 cks.	
Pyrites— Seville, 410 t. Seville Sulphur Co.	
Huelva, 3 494 Tharsis Co., Ltd.	
Sulphur— Fiume, 10 cks.	
Tallow— New York, 95 tcs 20 hhds.	
Tar— New York, 1,260 brls.	
Tartar— Oporto, 7 cks.	
Tartaric Acid— Fiume, 14 cks. W. Buntin & Co.	
Messina, 20	
Varnish— New York, 1 bx. 27 brls. 16 cs.	
White Lead— Rotterdam, 44 cks.	
Zinc Oxide— New York, 50 brls.	
Antwerp, 25 cks.	
Zinc White— Rotterdam, 200 cks.	
TYNE. <i>Week ending December 31st.</i>	
Barytes— Antwerp, 23 cks.	Tyne S. S. Co.
Castor Oil— Drontheim, 3 cs.	
Colours— Rotterdam, 1 ck.	Tyne S. S. Co.
Potash— Antwerp, 2 cks.	Tyne S. S. Co.
Salt— Harburg, 260 t.	
Saltpetre— Hamburg, 4 cks.	Tyne S. S. Co.
Saltpetre Salt— Harburg, 400 t.	
GOOLE. <i>Week ending December 21st.</i>	
Acetic Acid— Rotterdam, 4 cks.	
Alizarine— Rotterdam, 84 pkgs.	
Alkali— Hamburg, 10 cks.	
Calais, 20	
Antimony— Boulogne, 1 ck.	
Dyestuffs (otherwise undescribed) Boulogne, 18 cks. 41 pkgs.	
Farina— Hamburg, 395 bgs.	
Delfsdyhl, 2,330	
Glucose— Calais, 200 bgs.	
Indigo— Rotterdam, 4 chts.	
Potash— Rotterdam, 20 cks.	
Dunkirk, 38	
Pyrites— Huelva, 1,300 t.	
Saltpetre— Rotterdam, 200 bgs.	
Waste Salt— Hamburg, 751 cks.	
GRIMSBY. <i>Week ending December 24th.</i>	
Chemicals (otherwise undescribed) Hamburg, 12 pkgs.	
Farina— Hamburg, 185 bgs.	
Size— Antwerp, 3 cks.	
Zinc Ashes— Antwerp, 18 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending January 4th.</i>	
Acids and Ammonia (Liquid)— New York, 10 cs.	£17
Alkali— B. Ayres, 1 t.	£6
Rosario, 2	16
Alum— Mazagan, 5 t. 16 c.	£35
Robat, 2 9	9
Rosario, 10 cks.	15
Aluminous Cake— Melbourne, 10 t. 1 c.	£31
Copenhagen, 40 3	100
Calcutta, 27 4	85
Ammonia— Shanghai, 5 c.	£41
Dusseldorf, 5 cyldrs.	14
Adelaide, 5	11
B. Ayres, 20 drs.	25
Rosario, 8 20 cs.	48
Ammonium Carbonate— Adelaide, 5 c.	£13
New York, 75 brls.	200
B. Ayres, 1 t.	30
Ammonium Chloride— Cologne, 1 t. 13 c.	£50
Busreh, 8	15
Bussorah, 2 12	79
Ammonium Nitrate— Algoa Bay, 17 cks.	£158
Ammonium Sulphate— Demerara, 48 t. 16 c.	£492
Cologne, 70	700
Rotterdam, 50 18	500
Hamburg, 110 19	1,100
Ostend, 11 1	108
Barium Nitrate— Bombay, 9 c	£10
Bisulphide of Carbon— Philadelphia, 8 t. 5 c.	£155
Borax— Genoa, 19 c.	£70
Rockhampton, 4	6
Boric Acid— B. Ayres, 3 cks.	£29
M. Video, 2	4
Carbolic Acid— New York, 15 cks.	£80
Karachi, 20 drs.	25
Rotterdam, 9 t. 3 c.	155
Caustic Soda— Algoa Bay, 1 t. 1 c.	£58
Philadelphia, 20	312
Townsville, 4	46
Natal, 1 7	24
E. London, 1 18	60
Cape Town, 9 17	112
Chemicals (otherwise undescribed) Yokohama, 10 cks.	£102
Cape Town, 12 c.	21
Adelaide, 21 kgs. 2 cs.	46
New York, 10	59
Oporto, 10 5	65
Melbourne, 7	30
Citric Acid— Melbourne, 1 t.	£157
Boston, 5 kgs.	40
Reval, 20 cks.	782
Frementle, 1 c.	9
Adelaide, 10	78
M. Video, 1	9
Hamburg, 2 t. 11	433
Constantinople, 3	25
Coal Products— Alizarine New York, 25 cks.	£340
Aniline New York, 34 cks.	£250
Shanghai, 30 cs.	265
Aniline Dyes Melbourne, 9 cs.	£14
Anthracene Dusseldorf, 748 cks.	£4,154
Rotterdam, 152	1,065
Benzol Rotterdam, 55 pns. 23 drs.	£766
Boulogne, 27 cks.	221
Coal Tar Dyes Yokohama, 10 cs.	£124
Creosote Huelva, 2,699 brls.	£1,215
Dieppe, 725 cks.	274
Creosote Salts Antwerp, 2,640 bgs.	£320
Naphthalene New York, 90 cks.	£122
Hamburg, 102 bgs.	44
Paraffin Wax Hobart, 40 cs.	£125
Pitch Hong Kong, 2,100 cks.	£1,050
Gijon, 455 t.	663
Dunkirk, 300	450
Salonica, 150 brls.	65
Sydney, 20	11
Treport, 50	74
Terneuzen, 495	697
Algoa Bay, 10	25

Tar			Soda Crystals—			Borax—			Guano—		
Adelaide,	23 brls.	£22	Trinidad,	1 t.	£4	Sydney,	3 t. 2 c.	£91	Malaga,	50 t. 6 c.	£41
Bombay,	75 pkgs.	29	Cairo,	1 6 c.	5	Arica,	3 3	6	Gypsum—		
Danzig,	250	125	Algoa Bay,	1 5	6	Passages,	2 10	70	New York,	23 t. 13 c.	£41
Sydney,	20	15	Natal,	1 13	6	Varna,	3 2 q.	5	Horn Piths—		
Tar Oil			Sodium Bicarbonate—			Cienfuegos,	12	16	Ghent,	28 cks.	
Treport,	15 cks.	£35	Adelaide,	5 c.	£11	Cadiz,	11	16	Iron Chloride—		
Tar Salts			Trinidad,	1 t.	8	Halifax,	5 2	7	Bordeaux,	21 t.	£45
Halifax,	13 c.	£42	Rockhampton,	10	5	Vera Cruz,	10 3	5	Iron Sulphate—		
Toluol,			Sydney,	4 1	81	Portland, M.,	1 7	39	San Francisco,	20 t. 7 c.	£37
Rotterdam,	24 cks.	£62	Rosario,	1	10	Calcined Magnesia—			Valparaiso,	10 6 2 q.	11
Copperas—			Natal,	6	12	Calcium Chloride—			Alexandria,	18 17 2	11
Bussorah,	11 t. 1 c.	£25	Malta,	10	4	New York,	10 t.	£24	Lime—		
Copper Sulphate—			Sodium Carbonate—			Boston,	10 17 c. 3 q.	24	Accra,	2 t. 5 c.	£1
Batoum,	40 t. 7 c.	£670	Algoa Bay,	11 c.	£9	Caoutchouc—			C. C. Castle,	17	1
Leghorn,	5 6	80	Sodium Tartrate—			Pineus,	1 cs.		Magnesia—		
Madeira,	10	8	Melbourne,	5 cs.	£17	Carbolic Acid—			New York,	10 cs.	
Odessa,	5	70	Strontia—			Rotterdam,	18 t. 10 c.	£414	Magnesium Sulphate—		
Mengalore,	12	9	Philadelphia,	2 t. 8 c.	£30	Marseilles,	28	1,196	Catania,	30 bgs.	
Cream of Tartar			Strontium Carbonate—			Sevastopol,	6	20	Manganese—		
Melbourne,	5 t. 10 c.	£480	Libau,	5 t.	£45	Bombay,	4 cks.	12	New York,	8½ t.	
Wellington,	5	23	Strontium Nitrate—			Antwerp,	1	46	Manure—		
Disinfectants—			Bombay,	13 c.	£21	Pernambuco,	2 2 q.	7	Luca,	6 t.	£4
Calcutta,	130 drs.	£16	Calcutta,	1	30	Caustic Soda—			Las Palmas,	20	16
Bombay,	1 t. 5 c.	13	Sulphate of Lime—			Algoa Bay,	11 bxs.		Genoa,	60 2 c.	18
Natal,	32 pkgs.	43	Cape Town,	8 cks.	£26	Antwerp,	20 dms.		Marseilles,	60 4	28
Hamburg,	37 cks.	185	Sulphur—			Bombay,	100 135 brls.		Gr. Canary,	5	21
Melbourne,	6 cs.	13	Barbadoes,	1 t. 4 c.	£12	Boston,	135	28 cks.	Metallic Sodium—		
Singapore,	2 kgs.	13	Sulphuric Acid—			Bremen,	5		Rotterdam,	1 t. 6 c. 3 q.	£21
Flowers of Sulphur—			Algoa Bay,	3 c.	£9	B. Ayres,	20 kgs.		Ochre—		
Wellington,	2 t.	£18	Penang,	1 t. 5 10 drs.	26	Catania,	15		Callao,	50 brls.	
Algoa Bay,	5 16 c.	69	E. London,	1 10	15	Chicago,	50		Oxalic Acid—		
Guano—			Natal,	25 cs.	25	E. London,	7 cs.		San Francisco,	2 t. 8 c. 1 q.	£11
Jersey,	65 t.	£480	Superphosphates—			Genoa,	115		Paint—		
Malaga,	50	500	Antigua,	8 t.	£24	Havana,	40		Iquitos,	8 cks. 10 kgs.	
Hypophosphites—			Tartaric Acid—			La Guayra,	80		Para,	2	
New York,	25 cs.	£200	E. London,	2 kgs.	£10	Malaga,	33		Valparaiso,	25 45 dms. 30 lbs.	
Hypophosphite of Lime—			Rockhampton,	1 c.	5	Marseilles,	36	50 kgs.	Limassol,	5	11 pkgs.
Philadelphia,	18 c.	£330	Sydney,	1 t. 18	224	Matanzas,			B. Ayres,		
Iodine—			Fremantle,	3 3	310	New York,	175		Callao,	30 cs.	
Hamburg,	4 kgs.	£323	Melbourne,	3 2	13	Tripoli,	135		Capetown,		13
Manure—			Wellington,	3	17	Chemicals (otherwise undescribed)			Goree,	2	
Antigua,	10 t.	£107	Rosario,	1	6	Trieste,	2 cs.	£26	Havana,	2	
Berice,	20	205	LIVERPOOL.			Alexandria,	1 t.	33	Marseilles,	60½ t.	
Madeira,	5	52	<i>Week ending January 4th.</i>			Samsoun,	4 c.	6	Matanzas,	4	
Havre,	41	170	Alum—			Marseilles,	1 5	40	Mexico City,	1 cs.	11 fks.
Rouen,	35	200	Callao,	3 t. 7 c.	£19	Bombay,	18	29	Pt. Said,	1	
St. Lucia,	100	1,000	Valencia,	3 1	15	Boston,	3 3	283	Rangoon,	4	
Penang,	100	1,000	Alexandria,	2 5	60	Alexandretta,	10	17	Rotterdam,	28 kgs.	
Halifax,	4 7 c.	275	Capetown,	1 15	10	Hamburg,	12	17	Sagua la Grande,	3	
Boulogne,	1 15	30	B. Ayres,	3 15	22	Philadelphia,	13 6	291	San Juan,	75	
Lisbon,	5 2	35	Aluminous Cake—			Alexandria,	2 5	71	Savannah,	50	
Ghent,	225	2,250	Callcutta,	27 t. 15 c. 1 q.	£112	China Clay—			Sierra Leone,	1 16	
Sav. la Mar,	4	40	Ammonium Carbonate—			Bombay,	200 cks.		Vera Cruz,	1 1 bx.	
Bordeaux,	95	410	Callao,	14 c.	£23	Naples,	40		Painters' Colours—		
Metallic Sodium—			Genoa,	5	70	Boston,	60		Calcutta,	4 cks.	
New York,	1 t. 18 c. 18 cs.	£676	Portland, M.,	2 t. 10	8	Chloride of Lime—			Montserrat,	1	
Muriatic Acid—			Pernambuco,	9	14	Baltimore,	64 t. 5 c.	£531	Alexandria,	15	
Oporto,	1 t. 4 c.	£15	Ammonium Chloride—			Boston,	47 18	396	Algoa Bay,	20 kgs.	
Oxalic Acid—			Trieste,	1 t. 1 c. 1 q.	£36	Chrome Ore—			Antofagasta,	13 4	
Trebizonde,	3 cks.	£10	Alexandria,	1 1	33	Antwerp,	2 t. 12 c.		Baltimore,	231	
Odessa,	7 c.	12	Mexico,	3	5	Gobalt Oxide—			Beyrout,	15	
Phosphorus—			Odessa,	1 1	35	Gijon,	3 q.	£34	Bordeaux,	2	
Melbourne,	2 cs.	£20	Patras,	4	7	Copperas—			B. Ayres,	14 20 tins.	
Oporto,	2 c.	21	Ammonium Sulphate—			Syria,	4 t. 16 c. 2 q.	£11	Capetown,	1 cs.	
Halifax,	20	190	Bordeaux,	5 t. 2 c.	£55	Calcutta,	17 15	35	Genoa,	30 bgs.	
Potassium Bichromate—			Corfu,	30	297	Mexico City,	9 16 2	22	Naples,	10	
B. Ayres,	10 brls.	£85	Gr. Canary,	24	248	Puebla,	3 11 2	7	Pireus,	1 cs.	
Potassium Cyanide—			Alicante,	10	99	Talcabuan,	4 3	8	Pt. Natal,	2	
Shanghai,	6 cks.	£30	Genoa,	102 18 3 q.	1,039	Copper Sulphate—			Valparaiso,	164	
Yokohama,	5 cs.	26	Venice,	112 15	1,037	Ancona,	8 c. 2 q.	£7	Paraffin Wax—		
Potassium Prussiate—			Las Palmas,	15 14 2	158	Ghent,	5 t.	80	Terneuzen,	5 cs.	
Lisbon,	6 c.	£28	Valencia,	125 7 2	1,263	Marseilles,	140 4 3	2,400	Rio de Janeiro,	4	
Potassium Sulphate—			New York,	50 19 1	508	Barcelona,	39 3 1	457	Salonica,	15 5 cks.	
St. Kitts,	2 t.	£22	Aniline Salts—			Valparaiso,	7 10	124	Santander,	10 bgs.	
Salt Cake—			New York,	7 t. 5 c. 2 q.	£441	Leghorn,	21 13	334	Phosphate Rock—		
Ghent,	50 t.	£75	Barcelona,	12 cks.		Odessa,	20	325	Barcelona,	50 t.	£110
Antwerp,	125	219	Sevastopol,	2 c.	£28	Capetown,	7	210	Phosphorus—		
Saltpetre—			Bleaching Powder—			Rouen,	14	210	Vera Cruz,	5 cs.	£17
Lyttelton,	1 t.	£25	Baltimore,	59 cks.		Oporto,	13 5 1	201	B. Ayres,	2 c. 2 q.	291
Gibraltar,	12 10 c.	254	Bombay,	5		Naples,	5 2 1	74	Shanghai,	29	
Oporto,	3 13	74	Boston,	448		M. Video,	2 13	40	Picric Acid—		
Sydney,	1	24	Carthage, Sp.,	10 brls.		Rosario,	22 15	348	New York,	2 t.	£101
Bahia,	6 15	151	Genoa,	137		Bordeaux,	195 3	2,935	Pitch—		
Rio de Janeiro,	2 9	55	Benzoic Acid—			Algiers,	8 11 3	130	Bilbao,	40 brls.	
Boston,	3 8	72	Bombay,	5		Genoa,	32 13	494	Potassium Chlorate—		
Antwerp,	1	22	Calcutta,	10		Patras,	9 1	8	Naples,	1 t. 10 c.	£104
Lisbon,	7 7	149	Havana,	10 cs.	33	Cette,	50 9	808	Valencia,	1	
La Libertad,	5 11	135	Lisbon,	10 cs.		Havre,	15 1	235	Antwerp,	18	48
Rio de Janeiro,	5 5	112	New York,	87	33	Beyrout,	10	8	B. Ayres,	4	9
Salts of Soda & Salts of Lime—			Oporto,	27	10	B. Ayres,	9 13 1	147	Pernambuco,	1	8
Boston,	10 cs. 20 kgs.	£328	Syria,	10		Disinfectants—			Hioho,	15	113
Sheep Dip—			Vera Cruz,	50		Punta Arenas,	2 t. 13 c.	£123	Yokohama,	2 10	130
Pt. Chalmers,	50 cs.	£70	Boracic Acid—			Kobe,	10	23	Rouen,	1 1	56
Calcutta,	200 drs.	24	Havre,	5 t. 1 c.	£197	Yokohama,	1 10	63	Rotterdam,	1	46
Cape Town,	4 t. 10 c.	130	Yokohama,	1	38	Disinfectants & Carbolic Acid—			New York,	10 15	603
Sydney,	19 17	416	Lisbon,	3	6	Calcutta,	2 cs.	£13	Potassium Oxalate—		
Soda—			Dried Blood—			Gr. Canary,	20 t. 3 c. 3 q.	£160	Lisbon,	1 t. 3 c. 3 q.	£29
Demerara,	1 t. 7 c.	£5	Bordeaux,	10	50	Bordeaux,	10	50	Marseilles,	9 2 1	291

Potassium Stannate—			
Bombay,	1 t. 7 c. 2 q.	£106	
Rosin—			
Paranagua,	25 brls.		
Salt—			
Antwerp,	435 t.		
Capetown,	5		
Copenhagen,	1,717		
E. London,	17	17 c.	
Ghent,	200		
Matadi,	35½		
New Orleans,	100		
Sydney,	50		
Valparaiso,	8	10	
Alligator Pond,	5		
Boston,	106		
Brisbane,	571		
Calcutta,	10,829		
Capetown,	10		
New Orleans,	500		
" York,	7½		
Para,	100		
Rio de Janeiro,	2	2	
Rotterdam,	227		
Rosario,	170		
San Francisco,	50		
Sette Kroo,	5		
Shanghai,	1½		
Sinoe,	10		
Victoria, B.C.,	50		
Salt Cake—			
Kokomo,	250 t. 11 c.	£620	
Baltimore,	140	347	
Bombay,	2	6	
Hartford City,	150	373	
Philadelphia,	75	160	
Saltpetre—			
Antonina,	1 t. 13 c. 2 q.	£43	
Rio de Janeiro,	1	24	
Lima,	1	27	
Pernambuco,	5	129	
Sheep Dip—			
Portland, M.,	1 t.	£22	
Soap—			
Alexandria,	8 cs.		
B. Ayres,	3		
Colon,	25 bxs.		
Falmouth,	60		
Half Jack,	20		
Karachi,	10		
Lucca,	350		
Montego Bay,	150		
Mosel Bay,		5 bbls.	
Naples,	6		
New York,		3 cks.	
Para,	2		
Savannah,	150		
Sydney,	1,854		
Valparaiso,	1,052	13	
Accra,	60		
Akassa,	33		
Algoa Bay,		81	
Antigua,	50		
Anatto Bay,	30		
Asin,	30		
Barbadoes,	650		
Bocas del Toro,	150		
Bombay,		2	
Bordeaux,	1,500		
Boston,	5		
Cameroons,	95		
C. C. Castle,	250	1	
Graytown,		100 pkgs.	
Kington, Ja.,	2,640		
Limassol,		1	
Malta,	12		
Rangoon,	5		
Singapore,	508		
Trinidad,	2,200		
Soda Alkali—			
La Guayra,	15 brls.		
Sydney,	30		
Soda Ash—			
Antwerp,	10 cks. 100 brls.		
Baltimore,	707	2,600 bgs.	
Batavia,	5		
Bombay,	9		
Boston,	323	1,600	
B. Ayres,	100		
Leghorn,	12		
Lisbon,	12		
New York,	111	303 tcs.	
Tripoli,	150 brls.		
Soda Crystals—			
Livorno,	4 cks.		
Antwerp,	20 kgs.		
Boston,	560 brls. 56 cks.		
Old Calabar,		1 cs.	
San Francisco,	667		
Sodium Arsenate—			
New York,	20 cks.		
Sodium Biorate—			
New York,	15 cs.		
Yokohama,	50		

Sodium Bicarbonate—			
Beston,	100 cks.		
Antwerp,	4		
Bussorah,	10 brls.		
Hamburg,	2 cs.		
Sydney, N.S.W.,	580 kgs.		
Sodium Bichromate—			
Genoa,	3 cks.		
Sodium Bisulphate—			
Bombay,	2 cks.		
Sodium Chlorate—			
Antwerp,	25 kgs.		
New York,	100 bgs.		
Sodium Silicate—			
Barcelona,	35 brls.		
Cienfuegos,	4		
Spent Oxide—			
Hamburg,	718 t.	£718	
Sulphur—			
Portland, M.,	3 t. 1 c. 3 q.	£25	
Boston,	71	11	
Trinidad,	1	5	
Natal,	1	7	
Philadelphia,	70	363	
Superphosphate—			
Gr. Canary,	8 t.	£37	
Tallow—			
Algoa Bay,	10 kgs.		
B. Ayres,	18 brls. 8 cks.		
Sourabaya,	3		
Tar—			
Pt. Said,	1 brl.		
Turpentine—			
Calcutta,	13 dms.	£12	
Smyrna,	17		
Varnish—			
Genoa,	2 brls. 4 cks.		
Alexandria,	2 cs.		
Paranagua,	1		
Sydney, N.S.W.,	10 dms.		
White Lead—			
Alexandria,	1 kg. 1 ck.		
Zinc Chloride—			
Bombay,	9 t. 5 c. 3 q.	£146	
Bordeaux,	21	123	
Zinc White—			
Salonica,	10 kgs.		

HULL.

Week ending December 31st.

Alkali—			
Genoa,	61 dms.		
Benzol—			
Ghent,	15 cks.		
Bleaching Powder—			
Bremen,	17 cks.		
Harlingen,	10		
Riga,	33		
Borax—			
Riga,	39 cks.		
Caustic Soda—			
Genoa,	35 dms.		
Riga,	340	35 cks.	
Chemicals (otherwise undescribed)			
Antwerp,	10 cks.	12 btl.	
Amsterdam,		20 cs.	
Bari,	8		
Bergen,	2		
Bremen,	2		
Copenhagen,	25	20 pkgs.	
Christiania,	8	63 pkgs.	
		317 slbs.	
Drontheim,		10	
Genoa,	23	10	
Gothenburg,	46	63	
Hamburg,	8	60	
Leghorn,	11		
Marseilles,	8	10	19
Naples,	2		
New York,	10		
Rotterdam,	9	50	
Riga,	53	20	
Stettin,		2	
Trieste,	6		
Cottonseed Oil—			
Antwerp,	269 c.		
Bergen,	17		
Bremen,	50		
Copenhagen,	201		
Flushing,	140		
Fiume,	100		
Genoa,	350		
Gothenburg,	220		
Hamburg,	1,060		
Konigsberg,	110		
Marseilles,	900		
Rotterdam,	1,195		
Stavanger,	21		
Trieste,	2,100		

Dyestuffs (otherwise undescribed)			
Hamburg,	1 cs.		
Stettin,	60 bgs. 1 ck.		
Guano—			
Dunkirk,	100 t.		
Linseed Oil—			
Bergen,	18 c.		
Christiania,	51		
Hamburg,	97		
Rotterdam,	307		
Stavanger,	21		
Manure—			
Ghent,	45 t.		
Genoa,	271 bgs.		
Rotterdam,	51		
Mineral White—			
Hamburg,	500 bgs.		
Naphtha—			
Antwerp,	10 cks.		
Ghent,	2		
Painters' Colours—			
Antwerp,	22 cks. 5 cs.		
Amsterdam,	22		
Bari,	4		
Copenhagen,	1	2	
Christiania,	1	3	16 dms.
			1 pkge.
Dunkirk,	1		
Ghent,	27		
Genoa,	80		
Gothenburg,	2		
Leghorn,	52		
Naples,	12	2	
New York,	85		
Rotterdam,	1		
Rouen,	10		
Riga,	16	1	
Pitch—			
Antwerp,	250 t.		
Dunkirk,	188		
New York,	51		
Size—			
Bremen,	15 cks.		
Flushing,	21		
Soap—			
Bergen,	10 cs.		
Christiania,	1		
Stettin,	5		
Sumac—			
Riga,	30 bgs.		
Tar—			
Bremen,	3 cks.		
Stettin,	1		
Varnish—			
Copenhagen,	3 cs. 1 dm.		
Christiania,	1		
Ghent,	1	4 cks.	
Gothenburg,	2		
Konigsberg,	1		

GLASGOW.

Week ending January 5th.

Acid—			
Rangoon,		£64	
Benzol—			
Rotterdam,	14 dms.	£182	
Chemicals (otherwise undescribed)			
Rangoon,	24 t. 10 c.	£200	
Copperas—			
Bombay,	35 t.	£71	
Linseed Oil—			
Cape Colony,	2 t. 3½ c.	£52	
Natal,	1	8½	27
Paint—			
Cape Colony,		£90	
Rangoon,	4 t. 2 c.	67	
Painters' Colours—			
Mauritius,	8 cks.	£134	
Rotterdam,		55	
Paraffin Scale—			
Riga,	135 brls.	£312	
Paraffin Wax—			
Riga,	20 cks.	£45	
Pitch—			
New York,	5 t. 13 c.	£13	
Seville,	252	738	
Amsterdam,	251	13	320
Santander,	1,100		
Potassium Bichromate—			
Rotterdam,	27 cks.	£374	
Soap—			
New York,	2 t. 15½ c.	£35	
Cape Colony,		73	
Natal,	1½	21	
Sodium Nitrate—			
Cape Colony,	20 t. 2 c.	£196	

Sulphuric Acid—			
Cape Colony,	2 t. 7½ c.	£20	
Tar—			
Rangoon,	54 t. 5 c.	£80	
White Lead—			
Cape Colony,	4 t. 1½ c.	£77	

TYNE.

Week ending December 31st.

Alum Cake—			
Odense,	5 t. 5 c.		
Horsens,	5	7	
Asbestos—			
Nyborg,	1 frm.		
Barium Hyposulphite—			
Antwerp,	47 t. 17 c.		
Barytes—			
Rotterdam,	60 t.		
Bleaching Powder—			
Antwerp,	38 t. 1 c.		
Christiania,	15	4	
Aarhus,	10	2	
Rotterdam,	27	17	
Copenhagen,	100	8	
Reval,	50	1	
Gothenburg,		11	
Caustic Soda—			
Hamburg,	8 t. 16 c.		
Antwerp,	1	4	
Colours—			
Copenhagen,	5 c.		
Litharge—			
Christiania,	5 t. 12 c.		
Magnesia—			
Hamburg,	9 c.		
Manure—			
Jersey,	220 t. 3 c.		
Oxalic Acid—			
Copenhagen,	8 c.		
Paint—			
Hamburg,	1 t. 10 c.		
Antwerp,	11		
Ergasteria,	13		
Soap—			

PRICES CURRENT.

WEDNESDAY, JAN. 11th, 1893.

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—			£	s.	d.
Acetic, 25 %, and 40 %	per cwt.	7/- & 11/-			
" Glacial	"	50/-			
Arsenic S.G., 2000°	"	0 14 6			
Fluoric	per lb.	0 0 3 1/4			
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10			
" (Cylinder), 30° Tw.	"	0 3 0			
Nitric 80° Tw.	per lb.	0 0 1 3/4			
Nitrous	"	0 0 1 3/4			
Oxalic	nett	0 0 3 1/4			
Phosphoric, 1750°	"	0 1 2 1/2			
Picric	"	0 1 1			
Sulphuric (fuming 50 %)	per ton	15 10 0			
" (monohydrate)	"	5 10 0			
" (Pyrites, 168°)	"	3 5 0			
" 150°	"	1 5 0			
" (free from arsenic, 145°)	"	1 6 0			
Sulphurous (solution)	"	2 15 0			
Tannic (pure)	per lb.	0 1 2			
Tartaric	"	0 0 11 1/2			
Arsenic, white powdered	nett per ton	12 10 0			
Alum (loose lump)	"	5 5 0			
Alumina Sulphate (pure)	"	5 0 0			
Aluminium	per lb.	2s. 8d. to 0 3 2			
Ammonia, Anhydrous	"	0 0 1 1			
" 880 = 28°	per lb.	0 0 2 1/2			
" = 24°	"	0 0 1 1/4			
" Carbonate	nett	0 0 3 1/4			
" Muriate	per ton	20 0 0			
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-			
" Nitrate	per ton	38 10 0			
" Phosphate	per lb.	0 0 10 1/2			
" Sulphate (grey) London	per ton	10 3 9			
" (grey) Hull	"	10 3 9			
Aniline Oil (pure)	per lb.	0 0 7			
Aniline Salt	"	0 0 6 1/2			
Antimony	per ton	45 10 0			
" (tartar emetic)	per lb.	0 1 0			
" (golden sulphide)	"	0 0 10			
Barium Chloride	per ton	7 10 0			
" Carbonate (native)	"	3 10 0			
" Sulphate (native levigated)	"	45/- to 75/-			
Bleaching Powder, 35 %	nett	7 10 0			
" Liquor, 7 %	"	3 10 0			
Bisulphide of Carbon	"	11 15 0			
Chromium Acetate (crystal)	per lb.	0 0 6			
Calcium Chloride	per ton	2 5 0			
China Clay (at Runcorn) in bulk	"	17/6 to 35/-			
Coal Tar Dyes:—					
Alizarine (artificial) 20 %	nett per lb.	0 0 8			
Magenta	"	0 3 9			
Coal Tar Products					
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 0 0			
Benzol, 90 % nominal	per gallon	0 2 3			
" 50/90	"	0 1 10			
Carbolic Acid (crystallised 40°)	per lb.	0 0 7 1/4			
" (crude 60°)	per gallon	0 2 2			
Creosote (ordinary)	"	0 0 1 1/4			
" (filtered for Lucigen light)	"	0 0 1 3/4			
Crude Naphtha 30 % @ 120° C.	"	0 0 11			
Grease Oils, 22° Tw.	per ton	2 5 0			
Pitch, f.o.b. Liverpool or Garston	"	1 8 0			
Solvent Naphtha, 90 % at 160°	per gallon	0 1 0			
Coke-oven Oils (crude)	"	0 1 1			
Copper	per ton	46 2 6			
" Sulphate	"	16 10 0			
" Oxide (copper scales)	"	42 0 0			
Glycerine (crude)	"	13 0 0			
" (distilled S.G. 1250°)	"	43 0 0			
Iodine	nett, per oz.	0 0 9			
Iron Sulphate (copperas)	per ton	1 12 6			
" Sulphide (antimony slag)	"	2 0 0			
Lead (sheet) for cash	"	11 0 0			
" Litharge Flake (ex ship)	"	13 10 0			
" Acetate (white)	"	25 10 0			
" brown	"	17 5 0			
" Carbonate (white lead) pure	"	20 0 0			
" Nitrate	"	20 0 0			
Lime, Acetate (brown)	per ton	6 2 6			
" (grey)	"	10 15 0			
Magnesium (ribbon and wire)	per oz.	0 2 3			
" Chloride (ex ship)	per ton	2 7 6			
" Carbonate	per cwt.	1 17 6			
" Hydrate	per ton	17 0 0			
" Sulphate (Epsom Salts)	per ton	2 19 0			
Manganese, Sulphate	"	17 15 0			
" Borate	per cwt.	2 12 6			
" Ore, 70 %	per ton	4 5 0			
Methylated Spirit, 61° O.P.	per gallon	0 2 0			
Naphtha (Wood), Solvent	"	0 3 10			
" Miscible, 60° O.P.	"	0 4 7 1/2			
Oils:—					
Cotton-seed	per ton	20 0 0			
Linseed	"	19 15 0			
Lubricating, Scotch, 890°—895°	"	7 5 0			
Petroleum, Russian	per gallon	0 0 4 1/2			
" American	"	0 0 3 1/2			
Potassium (metal)	per oz.	0 3 7			
" Bichromate	nett per lb.	0 0 4 1/2			
" Carbonate, 90% (ex ship)	per ton	18 0 0			
" Chlorate	per lb.	0 0 8 1/2			
" Cyanide, 98%	"	0 2 2			
" Hydrate (Caustic Potash) 80/85 %	per ton	22 5 0			
" (Caustic Potash) 75/80 %	"	21 5 0			
" (Caustic Potash) 70/75 %	"	20 15 0			
" Nitrate (refined)	per cwt.	1 2 6			
" Permanganate	per cwt.	3 7 6			
" Prussiate Yellow	per lb.	0 0 9 1/2			
" Sulphate, 90 % (ex ship)	per ton	9 15 0			
" Muriate, 80 % (do.)	"	8 0 0			
Silver (metal)	per oz.	0 3 2 1/2			
" Nitrate	"	0 2 10			
Sodium (metal)	per lb.	0 3 4			
" Carb. (refined Soda-ash) 48 %	nett per ton	6 2 6			
" (Caustic Soda-ash) 48 %	"	5 0 0			
" (Carb. Soda-ash) 48 %	"	5 2 6			
" (Carb. Soda-ash) 58 %	"	5 7 6			
" (Soda Crystals)	"	3 2 6			
" Acetate (ex-ship)	"	18 0 0			
" Arseniate, 45 %	"	11 15 0			
" Chlorate	per lb.	0 0 9 1/2			
" Borate (Borax)	nett, per ton	29 0 0			
" Bichromate	per lb.	0 0 3 1/2			
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	11 0 0			
" (74 % Caustic Soda)	"	10 10 0			
" (70 % Caustic Soda)	"	9 10 0			
" (60 % Caustic Soda)	"	8 10 0			
" (60 % Caustic Soda, cream) (f.o.b.)	"	8 5 0			
" Bicarbonate	"	6 10 0			
" Hyposulphite	"	7 10 0			
" Manganate, 30%	"	16 0 0			
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0 8 10 1/2			
" Nitrite, 98 %	per ton	30 0 0			
" Phosphate	"	15 10 0			
" Prussiate	per lb.	0 0 7 1/4			
" Silicate (glass)	per ton	5 7 6			
" (liquid, 100° Tw.)	"	4 5 0			
" Stannate, 40 %	per cwt.	3 5 0			
" Sulphate (Salt-cake)	per ton	1 10 0			
" (Glauber's Salts)	"	1 15 0			
" Sulphide	"	7 15 0			
" Sulphite	"	6 12 6			
Strontium Hydrate, 100%	"	8 10 0			
Sulphocyanide Ammonium, 95 %	per lb.	0 0 7 1/4			
" Barium, 95 %	"	0 0 5			
" Potassium	"	0 0 7 1/2			
Sulphur (Flowers)	per ton	8 0 0			
" (Roll Brimstone)	"	6 15 0			
" Brimstone: Best Quality (nominal)	"	4 10 0			
Superphosphate of Lime (26 %)	"	2 7 6			
Tallow	"	26 5 0			
Tin (English Ingots)	"	95 0 0			
" Crystals	per lb.	0 0 6 1/2			
Zinc (Spelter)	per ton	18 0 0			
" Chloride (solution, 96° Tw.)	"	6 0 0			

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"CODLIN'S YOUR FRIEND, NOT SHORT."

THE new year has not opened well for chemicals. In most branches of this industry, falling prices, a glutted market, and general stagnation is everywhere the order of the day, notwithstanding the practical control of output which vast companies and syndicates have established in several directions. There is, however, one exception to the general rule, and the coal products market may be said to be "looking up." It is well for us to pause and consider how this has been brought about, and what are the chances of its continuance. We are mainly concerned with benzols and sulphate of ammonia, both of which articles have during the past few years met with such disturbing influences as perhaps have never before been witnessed with any other chemical products. Never before 1886 had benzol, bearing the test of 90's, been at such a low ebb as 1s. 6d. per gallon, a price to which, after a few years amelioration, it returned in 1892. The 1889 fall, it was stated, was brought about by the carbonizers, and no doubt this was to some extent true, though the great disaster was primarily brought about by the greed of speculators, who scoured the Continent for orders, and practically absorbed them all at less than half the price ruling at the time the contracts were made. When this was effected, then came the bearing season, in which speculators hoped to be able to cover their over-sales, at a less price of course than that at which they had sold six months previously, without any benzol in sight.

It is quite evident to the ordinary business man that tactics such as the foregoing would be sufficient to wreck the price of any product, whether it be chemical or otherwise, and it needed but a few months of such treatment to ensure the reduction in the price of benzol to 1s. 6d. a gallon. The little plan succeeded, but we venture to say that not one tar distiller in fifty profited by the excessive variations in price to which benzol was subjected.

Another move was angled for in 1887, but the fish was not caught. It would be more correct to say he was hooked, but broke away from the line; and for a time, by the most strenuous exertions of those who would have brought prices down, they were maintained at a sufficiently remunerative figure by all the devices of sincere speculation. Gradually, however, halfpences were whittled off the price, and by the spring of '92 benzol was down again at eighteenpence.

In the meantime carbonizing has extended to the Continent, and there are now about half-a-dozen works wherein benzol is manufactured from closed coke ovens. This will now always be the safety valve of the German colour makers, and these producers, though they may probably take advantage of London prices, still are far too cute to play into the hands of speculators whose forte is to snatch the chestnuts from the fire with any paws but their own.

"Codlin's your friend, not Short," are the words we would dedicate to the average tar distiller, let him look back upon

the past and acknowledge how much better off he has been for the excessive variations in price that have occurred in the benzol trade, and when he considers how such variations must affect industrial enterprise generally, he will see that it would pay him over and over again to back up a syndicate of his own trade, which was strong enough to upset those powerful evil influences which have so often in the past resulted in leaving the manufacturer with the squeezed lemon.

THE NORTHFLEET WHITE LEAD CO., LIMITED.

A FULL account of the plant and process used by this firm in the manufacture of white lead was given in No. 232 of this journal. As the subject is one of considerable interest to a number of our readers, we give the following further information concerning this company, which, until quite recently, was known as "Macivor's Patents, Limited," and is a company formed to manufacture white lead by a process patented by Mr. R. W. E. Macivor.

The process consists in treating litharge with a solution of ammonium acetate preferably in the cold, and, as soon as the mixture becomes pasty and thick, blowing carbonic acid gas through it till a dense precipitate falls to the bottom of the decomposing vessel, and a supernatant liquor is obtained.

The dense precipitate formed consists of a basic carbonate of lead, which, when washed, dried, and ground with oil, is found to possess great covering power and body.

The supernatant mother liquor consists of ammonium acetate, which can be employed for use over again.

It will be noticed on a closer examination of this process that any insoluble impurities present in the litharge are present in the finished white lead, and that the very poor qualities of litharge cannot, therefore, be employed.

To overcome this difficulty, the original patentee, in conjunction with Mr. Watson Smith and Mr. William Elmore, patented an improvement which consists in completely dissolving the litharge in a separate vessel and obtaining a solution of tribasic acetate of lead, the insoluble and coloured impurities being filtered off before passing carbonic acid gas through the solution. By these means a product is obtained possessing a beautiful white colour in addition to the above-mentioned properties. The great advantage of this process is that the presence of the free ammonia evolved during the process of solution renders the formation of a highly basic carbonate of lead an absolute certainty.

The poor qualities of litharge, however, frequently contain considerable traces of copper, and as the liquor is used over and over again for dissolving fresh quantities of litharge, the liquor becomes more and more contaminated which (unless great care is taken to remove the solution completely) would cause the white lead on long standing to become slightly discoloured. To remove this objectionable feature, Mr. Watson Smith in conjunction with Mr. William Elmore, patented a process for the removal of the copper by depositing it with another metal in a finely divided state, or by the passage of an electric current.

There were many almost insuperable difficulties at first to contend with in dealing with such a highly corrosive liquid as ammonium acetate, especially in conjunction with litharge, and in preventing the loss of the valuable ammonium acetate liquor and ammonia gas. Moreover, great difficulty was experienced in properly mixing the heavy litharge with the liquid, as finely ground litharge on coming in contact with the liquor forms a hard cement-like mass, unless dissolved as fast as it falls into the solution.

But the difficulties of adding litharge without losing a trace of ammonia, and perfectly agitating the liquor, have both been overcome by Mr. Oswald Hamilton, who has entirely remodelled the plant and made extensive necessary alterations in the original plant, to convert the litharge into white lead rapidly and economically.

By the new arrangement the liquor is completely decopperised by simply passing it through a kind of filterpress where, during its passage, the copper is replaced by lead, and the mother liquor rendered available for continued use in dissolving the litharge.



A GLANCE at the title which heads this article is in itself sufficient to explain our purport, and to indicate the nature of what is to follow; but perhaps a few remarks to explain our intentions more fully before proceeding, may not be deemed out of place. To chronicle all the events which have occurred during the past year, and which are related to the industries for which we make special provision, would be a colossal task, and one which the limited nature of our space unavoidably renders it impossible for us to undertake. Our object rather is to briefly review the chief changes and matters of interest, which have occurred in the chemical and allied industries, and also to summarise the progress which has been made in theoretical chemistry; thereby registering facts which bid fair to further extend our knowledge of applied chemistry, and affording a handy record for reference by our readers in the future.

Starting, therefore, with the subject of theoretical chemistry in relation to applied chemistry, we come first of all to

THE ADVANCES OF SCIENCE.

In the way of pure research we have the work of Professor Dewar on the Chemistry of Gases, and his further work in conjunction with Living on the spectrum of Liquid Oxygen, and the Refractive Indices of Nitrous Oxides, Ethylene, and Liquid Oxygen. Further, the formation and decomposition of nitrous acid has been investigated by Mr. V. H. Veley. Moissan has also been engaged in enquiring into the preparation of pure boron.

Messrs. Bailey, Lean, and Bone have done much to remove the obscurity which has hitherto surrounded the question of the rate and conditions of explosions in gases—a better knowledge of which would be of great assistance in many industries. Professor Lewes has also given information upon the phenomena of combustion and non-luminosity in Bunsen flames. Again, Lord Rayleigh has been engaged determining the relative densities of Hydrogen and Oxygen. Messrs. Schuster and Crossley have effected the electrolysis of silver nitrate in vacuo; while in the past year the discovery of what is supposed to be a new element has been announced. We say supposed to be, as a perusal of the account of this new element—Masrium—which appeared in the *Journal* vol. X., No. 258, will show that the discovery can hardly be accepted as authentic until further evidence in support of the statement has been put forward.

Turning to the various industries, we find they have each received a fair amount of attention. Paints and colours have been cared for by Dr. Church, who has been working upon the new animal pigment containing copper, called Turacin; while Professor Lipmann has been developing still further his process of colour photography, and Captain Abney has also been following up his work on Colour Measurement and Mixture.

The mining industry will hail with pleasure the work of Professor F. Clowes upon the Detection of Benzol and other inflammable vapours in air, the same investigator having also invented an apparatus for testing the sensitiveness of safety lamps, the use of which should do much to avert disasters such as happened during last year, on more occasions than one.

Metallurgy and Electricity have both seen important advances especially the latter. Dr. Alder-Wright has been engaged upon certain ternary alloys, and also alloys of aluminium, with lead, bismuth, silver and tin. The measurement of the magnetic properties of iron have been investigated by Mr. T. Gray while the demonstrations of Nicol Tesla at the Royal Institution, with his alternate current electric motor and in connection with alternating currents of high potential, indicate

the likelihood of a revolution in electric lighting (vide C.T.J. 251, vol. X.); in addition to this Messrs. Hopkinson and Wilson have also been investigating in connection with dynamo machinery.

Hygiene, especially in regard to water and sewage treatment, has been very largely discussed during the last twelve months; and elsewhere in these columns we give an outline of the chief and most successful processes which have been employed for sewage treatment. In regard to water, Messrs. Frankland and Ward have published their first report of the Water Research Committee of the Royal Society on the Bacteriology of Water. Mr. A. B. Griffiths has also examined rain water, discovering a new bacillus in the same, both of which researches have added materially to our present knowledge of the subject. But most important of all is the classical work of Mr. J. Aitken upon the phenomenon of cloudy condensation and its relation to fogs. The same investigator has also invented an apparatus which he calls a Koniscope, for counting the dust particles in air, and thus making a comparative estimation of atmospheric vitiation. Observing that in the case of cloudy condensation peculiar colours were visible, he produced similar phenomena by artificial means and calculated the number of dust particles which gave the distinctive colours. He found that 80,000 particles in a cubic centimetre gave, when inspected in the Koniscope, a very pale blue colour, 1,500,000 particles a fine blue, and 4,000,000 a very deep blue. Thus by noticing the colour given by the external air and that obtained with the air in suspected dwellings, a very fair idea of their salubrity could be gathered. The real theory of ventilation might also be investigated by observing the air currents in rooms and finding where the bad air lurks.

As the direct off-shoot of chemical research and its application to industry, we come in natural sequence to

TECHNOLOGY.

The craze for technical education is just at present at its highest. Our views as to the form which instruction of this kind should take have on several occasions been set forth in these pages, and are briefly recapitulated in our article on the proposed Manchester Municipal Technical School, a description of which we publish in this issue. The growth of competition compels us to educate the rising generation more effectually, and the establishment of the splendid school which we illustrate is the best testimony that we can instance, to show that an effort is being made to do so. The idea of putting the Technical School under the control of the Corporation has also been adopted in Birmingham by absorbing and rebuilding the Midland Institute, which has become inadequate to accommodate its students. The City Council took the first step towards carrying out this scheme in December last, when they spent close on £12,000 in purchasing a site in Suffolk-street for the proposed new Municipal Technical School. At Newcastle-on-Tyne likewise, in the same month of last year, the Earl of Durham laid the foundation stone of the new wing that is to be added to the Durham College of Science.

To mention all the technological advances of the year that has just ended would be useless here, as our columns are specially devoted to the object of recording all such matters, and our readers have therefore already been acquainted with them.

The importance of the work of Messrs. Stead and Saniter, however, in endeavouring to utilise a waste product in the form of calcium chloride for eliminating sulphur from iron, calls for special reference; while we might just remind our readers of the work of Ludwig Mond on iron and nickel carbonyles, which attracted so much attention some time back. This matter has not been forgotten, and possibly the present year may bring us further developments of these discoveries.

Another notable feature is the establishment of the extensive laboratories of the United Alkali Co., Limited, at Widnes, which, we trust, we shall have the pleasure of introducing more fully to the notice of our readers at a future date.

Speaking of technology and the United Alkali Co. Limited renders very easy, the transition to our friends connected with the

CHEMICAL AND ALLIED INDUSTRIES.

In regard to manufacturers of alkali by the Le Blanc process, last year saw the United Alkali Co. Limited hold their first annual general meeting, when a dividend of 5s per share for the last six months of 1891 was announced, in addition to the 5 per cent. interim dividend for

the first six months of the same year, the directors' report evidently giving satisfaction to the shareholders.

Several new processes also were started for the manufacture of alkali and bleach, among which should be mentioned the Caustic Soda, and Chlorine Syndicate, which made an experimental trial of Greenwood's process at Battersea in January of last year, Wallis's Chlorine Syndicate, and the patents of Kellner, worked by the Alkali Syndicate, Limited. The production of white lead from ammonium acetate, litharge and CO₂ has been accomplished, and judging from the report of the works of the Northfleet Whitelead Co., Limited, which is given in this issue, the new venture has achieved more success than its co-pioneers have with electrolytic bleach; a process for recovering ammonia in the process of galvanising has also been worked successfully at Wolverhampton. Among new chemical works, several of which have been started, should be mentioned the Scottish Alum Co., the Stafford Salt and Alkali Co., the works of Messrs. Alex. Walker and Co. at Irvine, and a new works at Fleetwood-on-Tyne; while Messrs. Albright and Wilson, perhaps the largest makers of phosphorus in the world, have during the last year turned their company into a limited concern.

The oil trade in Scotland has met with several reverses, which have, however, not been wholly unproductive of good, for they have once more drawn public attention to the lowness of the flash-point for mineral oil, which the Government considers compatible with safety.

While there seems an increasing tendency to monopolise trade by means of unions and syndicates, a check is likely to be given to the exclusiveness of the Stassfurt trade by the discovery of extensive deposits of potash salts at Sondershausen, in the Wipper Valley, though the chances are that the Stassfurt industry will maintain its supremacy for a long time yet.

A Royal Commission was held to inquire into the question of brine pumping and compensation for the subsidencies caused thereby. This question, together with the Verdin Trust Fund, which was bequeathed in connection with this matter, has during the past year been satisfactorily disposed of.

The coal mining industry had several important chapters added to its history during the gigantic strike which took place last year, and which has been survived, while numerous promising deposits of coal have been found (and in some cases steps taken to exploit them) in Staffordshire, Cumberland, and Lancashire, and at Newcastle and Chapel-en-le-Frith, apart from the important discoveries of coal which have been made in our colonies.

Chemical manufacturers have seen the important lawsuit of *The Queen v. Levinstein* brought to a successful issue, the case involving the decision of a point of superlative moment to the chemical industry, which will doubtless be taken as a test case in the future, and we congratulate manufacturers upon the establishment of this precedent in their favour. Two very salient features have likewise to be recorded in the formation of the Commercial Court of Justice and the establishment of the London Chamber of Arbitration, both of which we have previously enlarged upon at the time of their inauguration.

While upon the subject of law it will not be out of place to briefly refer to the

NEW BILLS

which have come into force during the last twelve months. The two most important features have been the passing of the Alkali Works, &c., Amendment Bill, and the Rivers Irwell and Mersey Prevention of Pollution Bill, both of which we have fully dealt with in the past. Then there has been the Technical and Industrial Institutions Bill—a bill affecting the teaching of elementary agriculture in schools—the Smoke Nuisance Metropolis Bill, and an amendment bill in connection with the Public Health Act.

There are several other Bills which are in various stages of progression, and to which further reference will not be made here, the five first-mentioned measures being the most important among those which have become law, as far as the chemical trades are concerned at all events.

The fact that nothing further could be said in regard to legislation till the new Parliament had assembled, reminds us that we have nearly reached the end of our tether; but before concluding, there are one or two

MATTERS OF GENERAL INTEREST

which must not be passed by unnoticed if our review is to be as complete as we wish it to be.

The Labour Commission, after sitting for a year and eight months, was brought to a conclusion in December of last year, and the publication of the report will follow, we suppose, in the course of time, though what information will be gained regarding the rights and wrongs of the labour question it is impossible to say without perusing the final report; to digest which will, we think, be beyond the power of most people. With the termination of one Commission we have seen another commenced—we refer to the Water Commission. The precautions which the Medical Officer of Health for the Port of London has taken to secure better means for meeting the possible return of the cholera plague this year ought to be strengthened by this Commission, and we trust they will; though the agitation which has arisen locally on the water question is apparently quietly dropping, as it generally does, until the cholera comes and goes again once more.

Some important experiments, however, have been made during 1892 by the Air and Fog Analysis Committee of the Manchester Field Naturalists' Society respecting the air in that city, the impurities found in the rain and snow which fell, and also the comparative amount of sunshine which that city enjoyed. The figures obtained were very instructive, and we hope in the present year to see this matter accorded still greater prominence.

We have thus reached the point where we have to wait for the events of 1893 to further or complete the various projects, which we have touched upon in the foregoing, so that all that remains to be done is to conclude, and this we do by expressing the hope that the year upon which we have just entered, may show as good a record of quiet but steady advance as a general retrospect of the past year has indicated.

Oils, Paints, and Soap.

VERMILIONETTES AND ROYAL REDS.

(Specially contributed.)

VERMILIONETTES and royal reds are a group of painters' pigments, which owe their origin to modern developments in chemistry. Twenty years ago their production would have been impossible, but it is even a shorter time than that, since they were first brought out and offered to painters as substitutes for the more expensive pigment vermilion, from their resemblance to which the name of vermillionettes is evidently due. They have not succeeded in displacing vermilion, for there is as much, or even more, of this colour used than ever, but they have found a place of their own in the painting world, filling, as they do, the want of a cheap and bright red pigment.

Their manufacture is to some extent a trade secret, very little about them having found its way into English technical literature, and much of that which is published is not of much use to the manufacturer, being of rather too vague a character and not over accurate in many points. Although the process of manufacture is more or less a trade secret, yet it is pretty well known to colour-makers, and there are not very many who cannot make a vermillionette or a royal red; but there are a great many who do not know how to make them properly, and there are many colour-makers who, from want of this knowledge, waste a great deal of the materials they use. It is the purpose of this article to show how they are made, and the best way of making them, and, if possible, to explain some of the principles on which their manufacture is based.

PRINCIPLES OF MANUFACTURE.

These pigments owe their bright red colour to their being made from the eosines, a class of dyes made from coal tar, which were first introduced in 1874, and which are now used in large quantities for dyeing and pigment making. There are several eosines, differing from one another in their chemical composition, a subject which space will not allow us to enter on. They differ in the shade of colour they will dye, or of vermillionette they will make, some giving very bright yellow shades of scarlet, such as the eosines known as Eosine Y, Eosine G, &c. Others dye or make a blue shade of scarlet, and are known as Eosine A, Eosine B, Eosine BN, phloxine, erythrosine, rose bengale. For making vermillionettes or royal reds, the yellow shade eosines give the best and brightest results.

The colour-maker will see from these remarks that by using different brands of eosine, he is able to vary the colour of his vermillionettes to a great extent. The property which gives these dye-stuffs their value in making pigments, is that they are precipitated from their solutions by the addition of solutions of acetate of lead, or of alum, forming with the lead or alumina insoluble coloured precipitates, or colour-lakes as they are often called. These precipitates are true lakes, because they are combinations of a metallic base with an organic colouring principle. Vermilionettes and royal reds do not, however, consist of these colour-lakes alone, but contain either orange lead or barytes, or both these bodies, the former being added to give weight, and also to modify the colour a little, so as to cause the product to resemble more closely in appearance and weight genuine vermilion, while the barytes is added to give it body or covering power, and to enable the colour to be produced at a low cost. The best reds of this group contain orange lead only, in addition to the eosine colour-lake, while the original vermillionettes contained barytes in addition. Many of the cheap qualities do not contain any orange lead, being made up of barytes and the eosine colour-lake. Royal reds are very deep, solid, and heavy pigments, while vermillionettes are paler in tint and lighter in weight. There is, however, no sharp line of demarcation between the two.

PROCESS OF MANUFACTURE.

These colours are manufactured by the following process:—Into a tub is weighed the mixture of orange lead and barytes which is to be used, and sufficient water is added to convert it into a thin cream. This should be done thoroughly, so that a mass of a uniform consistency is obtained. If not properly done, the result will be that the finished product will not be uniform in colour, but will contain masses of uncoloured barytes and patches of uncoloured orange lead. In two separate tubs, by means of heating with steam, the eosine which is to be used is dissolved, and also the acetate of lead or alum which is required to precipitate it. When the eosine solution is ready, it is run into the tub containing the orange lead and barytes, and thoroughly mixed with the other ingredients. The precipitating solution is then added in sufficient quantity, and the mixture allowed to stand until the pigment settles out. If the quantity of acetate of lead or alum used has been sufficient, the liquor which collects above the pigment will be quite clear and colourless, or, at the most, of a very faint pink colour. Strong colouring is a sign that an insufficient quantity of the precipitant has been added, and the full colouring power of the eosine has not been developed. More precipitant should therefore be added, until the eosine is completely precipitated out. The writer has known of cases where for want of adding sufficient lead acetate or alum, a good deal of the eosine was run away in the wash waters, the resulting vermillionette not being so deep in shade as it ought to have been. After the pigment has settled, the clear liquor may be syphoned off, and fresh clean water run in to wash the vermillionette.

With regard to the quantity of lead acetate required to completely precipitate the eosine, no definite figures can be given, for the simple reason that the quality and strength of the eosine used varies very greatly with different makes. As a general rule these colouring matters require, with lead acetate, from $1\frac{1}{2}$ to $2\frac{1}{2}$ times the weight of the eosine used, while with alum rather less than from 1 to 2 times the weight of dye-stuff will be found sufficient. Acetate of lead gives decidedly better results than alum, the vermillionette so produced being much brighter in colour, and deeper in tint, than vermillionettes made from alum; while they are more permanent in character, and will withstand exposure to light and air very much better, which is a property of great value in vermillionettes and royal reds.

MANUFACTURING RECIPES.

The following recipes will give some idea of the quantities of materials required in the manufacture of these pigments:—

1. *Pale Vermilionette*.—112lbs. barytes, 3lbs. eosine L, and 5lbs. lead acetate. This gives a fine bright scarlet pigment.
2. *Light Vermilionette*.—112lbs. barytes, 4lbs. eosine Y, and 6lbs. lead acetate. Yielding a very good product.
3. *Middle Vermilionette*.—112lbs. zinc oxide, 30lbs. orange lead, 6lbs. eosine 4 J extra, and 12lbs. lead acetate. This gives a very fine, brilliant vermillionette.

4. *Deep Vermilionette*.—112lbs. barytes, 30lbs. orange lead, 6lbs. eosine A, and 12lbs. lead acetate. A good product, of a fine scarlet tint.

5. *Pale Vermilionette*.—112lbs. terra alba, 10lbs. eosine Y, and 15lbs. alum. This gives a vermilionette of a fairly good tint, and is given to show the use of alum in precipitating these pigments.

6. *Deep Vermilionette*.—112lbs. terra alba, 10lbs. eosine Y, and 15lbs. acetate of lead. A very good product, of a fine scarlet colour. When gypsum is used in place of barytes, much more eosine is required to produce the same shade of vermilionette, but the pigment is not so heavy in character.

7. *Victoria Red*.—112lbs. barytes, 5lbs. rose bengale, and 12lbs. lead acetate. This gives a pigment possessing a fine deep blueish tint of scarlet.

8. *Royal Red (pale)*.—112lbs. orange lead, 4lbs. eosine G, and 10lbs. lead acetate.

9. *Royal Red (medium)*.—112lbs. orange lead, 6lbs. eosine L, and 15lbs. lead acetate.

10. *Royal Red (deep)*.—112lbs. orange lead, 8lbs. eosine J, and 20lbs. lead acetate. These are three very good pigments.

11. *Signal Red*.—Dissolve 112lbs. barium chloride in water, add 7lbs. eosine A, and 112lbs. sulphate of alumina, previously dissolved in water. This method of making gives a fairly bright product.

12. *Signal Red*.—Another pigment of a bright colour is made from 112lbs. barytes, 4lbs. eosine BN, and 15lbs. lead acetate.

These few recipes will show how these colours are made. They can be multiplied indefinitely, and colour-makers will see that by varying the proportion of the eosine to the base (barytes, orange lead), any variety of tints can be obtained, respectively paler or deeper than those given above.

THE MANUFACTURE OF SODIUM SILICATE.

(Specially contributed.)

AMONGST the various materials which are employed in the process of manufacturing soap, sodium silicate is one which is of great importance to the soapmaker, and to know where to obtain this compound in a reliable state of purity is a question which exercises the mind of almost every soapmaker, whether in this country or abroad.

This product in the solid state has been generally known in the trade up till now, in two forms—the brown silicate and the green; the former being an alkaline silicate, and the latter neutral. Owing, however, to the difficulty which attends the solution of the green silicate, public preference has ruled in favour of the brown or alkaline silicate. It is not generally known to the majority of soapmakers, however, that it is possible to manufacture a silicate of soda which dissolves easily, and yet is of such a light colour as to lead the uninitiated to class the product as an inferior quality of brown silicate, and therefore likely to possess the disadvantage which characterises the green silicate. The colour is no longer a hard-and-fast indicator of the quality of a silicate, and in the present day of extended technical education (in this country at all events), it is singular that the difficulty of educating the taste of the soapmaker to appreciate the difference between the old brown silicate and this new light-coloured silicate should be so great. We doubt not that in time, however, the public prejudice will be overcome, and manufacturers will then see the great advantage which they gain through the development and the perfecting of this article, so as to obtain a silicate glass, which is readily soluble, and at the same time almost colourless, if not quite so, as thereby the trouble entailed in bleaching the silicate is done away with.

As the manufacturing process employed in the preparation of this silicate will doubtless be of interest to soapmakers, we give below a brief outline of the operations which are performed in the manufacture of this article, and which it was our privilege to witness a few weeks since at the works of Messrs. Crosfield and Sons, of Warrington, where this process is working:—

The first operation entails the production of the "melt." To obtain this, a mixture of pure Belgian sand and Brunner Mond's ammonia-soda ash is placed in an ordinary reverberatory furnace by means of an

automatic charging apparatus, which consists of a small conveyor carrying the mixture into a hopper situated at the top of the furnace. When the charge has been introduced it is furnace in the ordinary way, the furnace being heated by gas, on a principle similar to that employed in a Siemens's regenerative gas furnace. When the fusion of the mixture, which takes about five hours, is completed, the melt is run off into a shallow iron trough and allowed to cool. The glass thus obtained possesses a yellowish green colour, closely akin to that of topaz, and is very translucent.

This glass, which is alkaline, consists practically of Na_2SiO_3 , the ordinary green glass having the formula $\text{Na}_2\text{Si}_2\text{O}_5$.

The next step is to obtain the silicate in the form known as soluble glass, and herein lies one of the chief features of novelty in the process. The vessel in which solution is effected consists of an egg-shaped wrought-iron cylinder of strong proportions, and placed in a vertical position, the diameter of which is about one third the total height. A short distance from the bottom of the cylinder is a perforated tray, and passing down to the level of this tray, from the top of the vessel, and opposite to each other, are two vertical perforated steam pipes. On this tray, and round the pipes, is packed the melt until the vessel is nearly full. It is then filled about one-third full of water, the cover screwed down, and steam blown in through the pipes just mentioned under a pressure of 80lbs. to the square inch, which pressure is maintained during the whole of the dissolving operation. By this means a solution of the melt is obtained, having a sp. gr. of 1.25 (50°Tw.)

This liquor is placed in settling tanks where any small quantity of undecomposed sand, and also silicate of alumina and other impurities, settle out. The clarified solution is then conveyed to the concentrating pans heated by steam jackets or coils, and is there boiled down to any required strength, this firm manufacturing soluble glass of three strengths—namely, 75°Tw., 100°, and 140°Tw. The resulting product is perfectly white and practically transparent, and to indicate the extent of the precautions taken to obtain soluble glass of the highest purity, it might be mentioned that distilled water is used in the lixiviating process.

PURE CAUSTIC FOR SOAP BOILERS.

(Specially Contributed.)

PURE caustic lyes are essential to the soap manufacturer. To obtain pure caustic soda, it stands to reason that a better result can be obtained by starting with a pure raw material. Bearing this in mind, the same firm as mentioned above have devoted their attention to the manufacture of pure caustic soda for soap makers, and have succeeded in producing a 77% caustic of exceptional purity, by means of Loewig's Process of heating soda ash with ferric oxide. The plant, which, owing to the kindness of Dr. Markel, we recently saw in operation, was conducted on the following lines:—A mixture of Brunner, Mond, & Co.'s ash and ferric oxide, in the proportion of one of ash to three of Fe_2O_3 , is fed automatically into a hopper by an apparatus similar to that employed for charging the furnace in the fusing process of the manufacture of silicate of soda. The hopper surmounting the furnace contains a charge of about 10 tons of the mixture. The furnace itself is in external appearance an ordinary revolving black ash furnace, heated by a modified Siemens' gas furnace. When the contents of the hopper have been discharged into the revolver, the same is set going at a slow speed. As soon as fusion has taken place to such a degree that the ash is all taken up, the speed of the revolver is greatly accelerated, and the process continued until a sample of the resulting fused mass no longer gives any effervescence with hydrochloric acid.

When this point has been reached, the charge is run off, the ferrite of soda along with a little ferrate thus obtained, being allowed to cool in the open air, during which it does not undergo any decomposition. When ready, this product is conveyed to a battery of ordinary Shank's lixiviating tanks, where it is lixiviated in the ordinary manner with weak liquors from a previous operation. By this means a caustic lye of 70°Tw., is obtained direct from the lixiviating tanks, which only needs the usual treatment in the caustic pot to produce a perfectly white solid

caustic soda of 77%, while the ferric oxide which settled out is ready to be mixed with fresh soda ash for the production of a new batch.

When the caustic lye is required to be used for soap making direct, as 70Tw. is too high a strength for such purpose, it is simply diluted according to requirement. A singular phenomenon here presents itself. On dilution, the small quantity of sodium ferrate which is present in the strong lye becomes decomposed, the whole of the liquor being turned a blood red colour, due to the formation of ferric oxide, while oxygen gas is evolved. The liquor is then allowed to settle, which it quickly does, giving a perfectly clear supernatant lye.

The chief advantage about the caustic soda manufactured by this process is that it is absolutely free from nitre and other impurities, a fact which is obvious since the raw material is one of the purest ashes made, and every precaution is taken to avoid the introduction of impurities during the process of manufacture. The only contamination which takes place results from contact with the fuel gas in the revolver, which unavoidably leads to the presence of a small quantity of sulphate in the caustic. The amount of sulphate which occurs, however, is guaranteed to be not more than 0.75%, while generally it is nearer to 0.5%. The exceptional purity of such a caustic cannot fail to arouse the interest of every soap maker, while it has already been largely enquired for on the Continent by Alizarine manufacturers on account of its high standard of purity.

OIL THICKENERS.

(Specially contributed.)

FROM time to time attempts have been made to add some one substance or another to light mineral lubricating oils, to give them as much body, thickness, or viscosity, as it is variously called, as the heavier mineral oils; the main object being if possible to produce a heavy bodied oil at a lower price than the pure untreated heavy mineral oils can be sold at. Thickening oils being in reality a species of adulteration, the question whether such treatment improves the quality of the oil becomes an open one.

Any body which is to be used as a thickener for oils must possess one important property, it must be perfectly soluble in oil, and soluble without the necessity of employing much heat to dissolve it, otherwise the oil would suffer deterioration in quality and appearance in the process.

Bodies which are insoluble such as mica or talc are inadmissible. Solid fats while capable of thickening oils are not suitable on account of their increasing the cost of the finished product. Paraffin wax and scale will not thicken oils, while it would not do to add bodies of the nature of rosin, as they would tend to gum up the machinery, and that is not desirable. Therefore among bodies which can be used as oil thickeners, the only compounds available are soaps.

There are broadly speaking two kinds of soaps, those which will dissolve in water, namely alkaline soaps, and those which are insoluble in water, containing such bodies as lime or alumina as their base. Occasionally these are called metal soaps, and some of them under that name are used for thickening oils. It is the purpose of this article to deal more particularly with these two classes of soaps.

ALKALINE SOAPS.

The alkaline soaps as made for domestic and ordinary industrial purposes contain some 20 to 25 per cent. of water, being in fact hydrated soaps; in this form they will not dissolve in oil, but when mixed with the oil are simply suspended therein in the form of flaky particles.

If however they be dried so as to render them anhydrous they become soluble in oils, and they cause the same to become more viscid, or in oil dealers' language they bring up the body of the oil.

Touching the method of preparing these soaps it is not necessary to enter into details, as it would not be worth the while of any oil dealer to make them himself, it being cheaper to buy them direct from the soap maker.

As however they contain water they must be dried before they can be used for this particular purpose. This can be done by any convenient means. They are used for thickening oils in the following manner. The oil to be thickened is put into a steam jacketed pan, and heated to

about 180° to 200°F., this makes it more fluid, and causes it to have a greater solvent action on the dried soap; to this is then added the soap in suitable quantity, which is stirred into hot oil until dissolved.

The mass is now allowed to cool when it is ready for use. Heating the oil to the temperatures named has little or no action on it. If the soap used is dry it will dissolve entirely in the oil, but if it contains any water it will not dissolve completely. In such case heating the mixture of oil and soap to a little over the boiling point of water (by which means the latter is gradually driven off) will cause the soap to enter into solution. This way of course takes longer than it does to dissolve a dry soap, but can be done, the only point being to take care not to get the oil too hot, or it may become discoloured. A good deal of frothing takes place during the operation due to the escape of the water contained in the soap when this latter method is adopted, it being necessary therefore, to use a capacious vessel to conduct the process in, and to watch the same so as to prevent boiling over.

Soap may thus be readily amalgamated with mineral oils, and its thickening properties are very great, in fact too great if the oil is desired to remain fluid after thickening, the action of soap being rather that of gelatinising than increasing the viscosity of the oil. As little as 4 ozs. of ordinary soap in one gallon of an 885 mineral oil will cause it to set into a jelly when cold, while one pound of soap will convert the same oil into a grease of good consistency, which would probably be of service in making hot neck greases.

METAL SOAPS.

The oil thickener *par excellence* is oleate of alumina, a compound of oleic acid and alumina. This product can be made as follows:—112 lb. of "pale" oleic acid, (which can be bought from any of the large candle making firms,) is run into a tub containing 10 gallons of hot water, to this is now added slowly and in small quantities, stirring well and constantly, a lye made by dissolving 16¼ lb. 77 per cent. caustic soda in 10 gallons of water. The mixture should now be boiled up until a perfectly homogenous mass is obtained, this gives us oleate of soda.

70 lb. of alum are now dissolved in 20 gallons of boiling water, and when dissolved the oleate of soda which has been made as described above is poured into the alum solution.

Almost immediately curdy, greasy masses of oleate of alumina form on the top of the solution and are collected, and pressed to free them as much as possible from extraneous moisture. The oleate of alumina may be dried but it is not absolutely necessary.

USE OF OLEATE OF ALUMINA AS A THICKENER.

To use this material for thickening, the best plan is to take 112 lb. of the oil to be thickened and add 28 lb. of the oleate as made above, the whole is now heated to about 230°F., and kept at this temperature until complete solution of the oleate in the oil is effected, which occurs when all the water in the oleate has been driven off. The mixture may then be allowed to cool when it will be found to set into a mass as viscid as treacle, but still capable of flowing. Any quantity of this may now be used to thicken up other quantities of oils, by simple amalgamation by the aid of gentle heat. The thickening or bodying properties of oleate of alumina are very great. By taking say an 885 oil and dissolving in it one-sixteenth part of its weight of oleate of alumina, it is made as heavy bodied as a 910-915 oil, while the cost of such an oil is less than that of a 910-915 oil; on the other hand the flash point is not altered nor is the specific gravity of the oil much affected by the treatment.

An oil thickened with oleate of alumina does not lose its viscosity or body so soon as an unthickened oil which is an advantage.

One particular purpose to which thickened oils may be put is lubricating heavy out-door machinery of any kind; but for light machinery they are quite unsuitable.

PREPARATION OF STEARATE OF ALUMINA.

Stearate of alumina is another body used for thickening oils. It is made by taking 112 lb. of distilled stearine, which is fairly pure stearic acid, melting in a large tub with 20 to 30 gallons of hot water, and slowly adding in small quantities a lye made from 16¼ lb. 77 per cent. caustic soda, carefully stirring all the time. When all the lye has been added, the mass is boiled until it is quite homogeneous, water being added till it is of the consistency of cream, and will flow pretty freely.

A solution of 70 lb. of alum in 20 gallons of boiling water is now prepared and into this is poured the prepared soap liquor.

Stearate of alumina forms on the top as a sticky mass and from time to time is skimmed off and thrown on to a filter to drain. When all the liquor has been drained off the stearate is ready for use.

As an oil thickener it is used in precisely the same way as oleate of alumina, and gives very similar results. If anything it bodies up the oil a little more, but being more troublesome to make and more costly it is not used to anything like the same extent as the oleate.

Both the oleate and stearate when freshly made are white greasy looking bodies. The oleate has a tendency to go brown on keeping, but much depends upon the quality and mode of storing the oleic acid from which it is made. If kept in iron drums it takes up a little iron which induces it to change colour more freely than it otherwise would. The stearate keeps its colour fairly well.

After being made by the methods just detailed, these products contain some water and are contaminated with a little alum and sulphate of soda. There is no necessity to dry the oleate or stearate before using, but as already stated, before complete solution in the oil is effected, all the water the thickeners contain is driven off by heat. Any traces of alum or sulphate of soda which the thickeners may contain are left at the bottom of the kettle, being insoluble in the oil, and they must be drained off before the oil is sent away for sale. This can easily be done by allowing the oil to stand and settle.

The compounds which we have thus described are the principal, and virtually only bodies used for thickening oils.

THE "BOWERS" RETORT DRYING OVEN.

WE have recently seen this retort in operation, and the ease with which it may be manipulated has induced us to bring the apparatus under the notice of our readers.

It consists of an iron chamber or retort pierced by a central flue (also in metal) which divides the chamber in two portions, an upper and a lower. The fire playing under a bottom plate heats the lower chamber, while the waste heat from this passes through the central flue and heats the top chamber.

The substance to be dried or carbonized is fed into a hopper, from which it is automatically discharged on to the bottom plate of the upper chamber, where it is carried forward by means of a pair of endless chains carrying bars at suitable intervals to the end of the chamber, when the substance (spent dyewoods for instance) falls upon the bed of the lower chamber, and is slowly conveyed towards the fire end of the chamber, from which it is automatically discharged.

The feed is simplicity itself, and perfectly regular and automatic; moreover there cannot be any escape of vapour from the hopper when the apparatus is working properly. There is also an arrangement for letting hard substances through without damage to the machinery.

The retort which we saw working at the Brookfield Chemical Works, West Gorton, Manchester, was drying spent ground dye-wood, which was afterwards carbonized in the same retort, the pyroligneous products being condensed and collected in the usual way. For such purposes as drying and carbonizing sawdust, or spent dye-woods, spent tan, peat, &c., or for drying only, such substances as fossil meal, brewers' grains, manures, precipitated phosphate, and others of a like nature, such a retort as this seems invaluable and much in advance of the present methods.

Our Book Shelf.

COMMERCIAL ORGANIC ANALYSIS. Vol. III., Pt. II., Second Ed. By Alfred H. Allen, F.I.C. 572 pp., 2 plates, and index. London: J. & A. Churchill, 1892.

The rapidity with which the importance of Commercial Organic Analysis has grown has created a want for a standard work treating on this subject from a practical and experimental point of view. In order to meet this demand, the author in publishing the second edition

of his already well-known work has thought fit to revise and very considerably enlarge what was the third volume of the first edition. So great was the task which he undertook that it has been found necessary to publish as Part II. of Volume III. the matter treating of the more generally known alkaloids and organic compounds. The less important alkaloids, cyanogen compounds, and proteids having been reserved for subsequent treatment.

The work which at present claims our attention is practically arranged under four headings, namely, Amines, Hydrazines, Bases from Tar, and Vegetable Alkaloids. Under the first two headings there is much interesting information, including the preparation, properties, and composition of antipyrine and its bases. The third section is, however, that in which the chemical trades are more directly interested. Under "Bases from Tar," we have a full description of the manufacture of aniline, the assay of aniline oils, and pyridine. Under Vegetable Alkaloids we have at the outset a description of the general reactions of the same both with acids, alkalies, and general precipitants. Following this, we find colour tests, extraction of alkaloids, and likewise their constitution and the synsis respectively considered. The various alkaloids are then treated in detail, and the chief sources from whence they are obtained, described. Amongst those of general interest are, firstly, nicotine, in connection with which many analyses of tobacco, and tobacco ash are to be found. Aconite, atropine, belladonna, cocaine, follow in due course, until opium is reached, which, in conjunction with morphine is fully treated. The portion devoted to the adulteration of opium merits special attention, affording much instructive reading, as is likewise the case with the section upon the toxicology of these two.

The Cinchona alkaloids form the next important feature, and they are accorded the attention which they deserve, some seventy-nine pages being devoted to them. The latter part of the work consist of a description of the characteristic alkaloids of tea, coffee, and cocoa, the former illustrated with two plates showing the various leaves used to adulterate tea. The information concerning imitation coffee also affords interesting reading, while under cocoa an instructive table, containing analyses of several well known brands is given.

There are few laboratories where the earlier portion of this work is not to be found, and it is a still smaller number of chemists who would be willing to let a work which contains such a valuable and reliable store of information exist without availing themselves of the same.

CHEMICAL LECTURE EXPERIMENTS. By G. S. Newth, F.I.C., 320 p.p. (including appendix), 224 woodcuts. Index. London: Longmans, Green and Co. 1892.

This work consists of a collection of experiments for demonstrating almost every point of theoretical chemistry. The experiments are described in detail, and, moreover, have, without exception, been put to a practical test, no mere verbal or printed description of any experiment being taken as authentic without first subjecting such experiment to an actual trial. This fact constitutes one of the novel features of the work.

A number of the experiments described are new, and many ingenious, ordinary quantitative laboratory experiments being omitted altogether. The subjects are treated in the order generally adopted in elementary text-books. Amongst some of the more striking experiments we might mention under chlorine a simple experiment to show the behaviour of the dry gas towards metals. Again, under hydrochloric acid a convenient little apparatus is described for demonstrating the synthetical preparation of hydrochloric acid. Under carbon dioxide several well-known experiments are described, but the particulars given for performing these experiments are described with a pleasing freshness. A very instructive experiment showing the inertness of perfectly dry gases is described under carbon monoxide, while a simple apparatus is described for demonstrating the preparation of nickel carbonyl. Perhaps are the wood cuts, the most important feature in the whole work, all of which, with one or two exceptions, have been prepared from original drawings, and therefore constitute an invaluable addition to the work, which fills a much felt want for teachers and demonstrators, among whom it should be deservedly popular. Students, again, will find it a

most useful companion, as by its aid they can confirm and obtain a more detailed acquaintance with the experiments which they should see when attending lectures, as such experiments do so much to give the student a clear conception of theoretical laws.

In short, the work is one of exceptional merit, satisfying an exceptional want, and should meet with exceptional appreciation.

THE CHEMIST'S LEGAL HANDBOOK. By a Barrister. 222 pp. London: British and Colonial Druggist, 1892.

The object of this work is to summarise the various statutory enactments affecting chemists and druggists. The chief difficulty of accomplishing this lies in the fact that there is a great paucity of judicial decisions, with which to illustrate the construction or test the meaning of the various Acts. The work is framed more particularly to meet the requirements of pharmaceutical chemists, but it also contains many points which are likely to prove serviceable to analytical and manufacturing chemists. As evidence in support of this statement we should cite the chapter on the sale of Food and Drugs, in which the penalties and regulations specified in this Act are detailed and exemplified, and the proceedings which obtain in regard to the purchase and analysis of samples are specified. Again, there are three interesting chapters treating upon stills, the regulations for the safe storage of petroleum and like substances, and also the regulations prescribed for the keeping and sale of explosives, &c. Further on we find a chapter upon the inspection of chemical and kindred works. In the form of an appendix, information regarding licenses, partnership, patents, and trade marks is to be found. The work is well arranged, neatly got up, and we think those chemists, whether manufacturers or professional, who provide themselves with a copy of this book will not regret the outlay entailed in purchasing the same.

Paper Makers' Column.

THE MITSCHERLICH SYSTEM OF PREPARING CELLULOSE FROM WOOD.

(Specially contributed)

THE manufacture of paper pulp, or, as it is distinctively called, "wood cellulose," from wood has assumed very great importance as an industry during the past decade. Ten years ago it was almost unknown, but to-day its importance to the paper maker cannot be over estimated. The *rationale* of the process under consideration is a simple one, consisting in acting upon suitable kinds of wood, at high temperatures, with an aqueous solution of bisulphites. These bisulphites possess the power of chemically combining with the incrusting materials which surround and bind together the individual fibres of the wood, forming soluble compounds which are readily separated from the cellulose by washing with water. The earliest known attempt to carry this principle into effect on a manufacturing scale was made by Tilghman in 1866. In that year this inventor obtained an English patent for a method of manufacturing cellulose by what we now know as the "sulphite process," and he may be looked upon as the pioneer of this industry, if, indeed, he cannot be called the originator of it. The work which Tilghman did of a technical nature is unfortunately little known, but it seems to have been of a clear and concise nature, because there is no obscurity about the application of the principle set forth in his patent specification.

Since Tilghman obtained his patent many investigators have been at work, and quite a multitude of processes have been suggested, and many are in active operation to-day. Of these various systems of manufacturing cellulose that identified by the name of Mitscherlich was one of the earliest introduced to paper and paper pulp makers, and is, at the present time, one of the best known. The process was brought out in 1871, a few years after the date of Tilghman's first patent, when the manufacture was still in its infancy. Since that year it has steadily increased in favour in Germany, Austria, Sweden, Norway,

and the U.S. of America. Lately a great deal of litigation has occurred in Germany over the Mitscherlich patents, and the German patent authorities have recently decided that they are devoid of novelty. In certain respects this system differs in detail from others. Its development occupied several years, during which time the two Mitscherliches showed great skill and patience in overcoming many difficulties that presented themselves. On the whole, it may be considered a safe process, and as it has yielded uniformly good results as regards the quality of the cellulose produced by it, in the hands of competent operators, is looked upon as one of the best.

Its distinguishing feature is that the wood is transformed into pulp slowly at a comparatively low temperature. The solvent used for dissolving the incrusting materials of the wood is bisulphite of lime. The processes which compete with it in many cases employ the same solvent, whilst some use other bisulphites or mixtures of bisulphites. All of them, however, aim at quick boiling, employing high temperatures to bring about the reaction between the incrusting substances and the bisulphites quickly, and in so doing involve risks which, although not altogether absent, are greatly lessened in the Mitscherlich system. It is maintained by manufacturers working this system that the pulp produced by it is stronger than that made by other methods, and this opinion is also shared by paper makers who use the fibre, and who claim to be in a competent position to judge.

We propose in the following account to give a description of the mode of preparing cellulose by the Mitscherlich system, and in doing so it will be convenient to sub-divide the subject into two parts, namely, (1) the preparation of the solvent, bisulphite of lime; and (2) the wood boiling process.

I. THE PREPARATION OF THE SOLVENT, BISULPHITE OF LIME.

There are many different ways in use for preparing the bisulphite of lime liquor for pulping the wood. Some inventors prefer passing gaseous sulphurous acid, obtained by burning pyrites or brimstone in the air, in suitably constructed kilns, into a weak milk of lime, whilst others prefer to act upon limestone with the sulphurous acid gas, the limestone being placed in tall towers and kept constantly wet with a descending stream of water. (The resulting fluid obtained by any of these methods can be made substantially alike in chemical composition.) If any preference can be given to one particular system perhaps that employing milk of lime will be found to be the most convenient and economical. Not unfrequently dolomite, a native double carbonate of magnesia and lime, found extensively in Germany and other parts of Europe, is substituted for limestone. Kellner, it appears, was the first to suggest the use of this mineral and to practically use it. In such cases a mixture of bisulphites of lime and magnesia is obtained.

Mitscherlich first used the method, employing tall towers filled with crystallized limestone. These towers were constructed of wood, and were very high—about 60 feet. As a general rule they are divided by grids into several compartments, a door being provided in each, so that the limestone can be introduced whenever it is found necessary. The manufacture of the fluid bisulphites with towers is very simple.

The pyrites are first of all broken into lumps about three inches cube, and thrown into the kilns, which are constructed in the same way as those used so extensively in sulphuric acid works. The weight of pyrites charged at one time depends on the work and size of the kiln. If much gas, *i.e.*, sulphurous acid, is required, and the draught to the kilns is strong, the pyrites will burn rapidly, in which case the necessary precautions must be taken to avoid over-heating. The charge in ordinary work amounts to about 45 to 50 pounds of stone (pyrites) per square foot of grate area every 24 hours. Where the draught is good, and the number of kilns is small, the best results are obtained by charging every 12 hours. In some factories, however, 24-hour charges is the practice. The gases leaving the pyrites burners should contain about 9 to 10 per cent. by volume of sulphurous acid.

If brimstone is used to generate the sulphurous acid the ordinary kiln constructed on the principle of Blair's burner answers the purpose very well. The sulphur is charged frequently, and in comparatively small quantities at a time, about 1 cwt. to ensure a mixture of gases of uniform composition. The richer the kiln gases are in sulphurous acid, the better and stronger the bisulphite liquor made.

amount of air required to burn pyrites is greater than that to burn brimstone, for the reason that the iron in combination sulphur as FeS_2 in the pyrites is oxidised to ferric oxide Fe_2O_3 , there is no other substance present in brimstone but sulphur requires oxidation. There is, therefore, less oxygen required to same quantity of sulphur in brimstone to sulphurous acid, and, less air. The volume of gases to be dealt with from pyrites one-half as much as from brimstone.

In gases containing the sulphurous acid are first of all cooled they are passed into the limestone towers. Long iron pipes of diameter and exposed to the air are used for this purpose. In of pyrites the kiln gases contain arsenic trioxide and dust comely of small particles of ferric oxide, etc. These gases are through long brick flues, in which a great deal of this dust is, before reaching the cooling pipes proper. In addition to, a considerable quantity of sulphuric acid is also present, due to oxidation and partly due to the decomposition of already formed in the pyrites. This sulphuric acid acts upon stone, forming sulphate of lime, a salt comparatively insoluble

In order to avoid the formation of this sulphate of lime, the in pyrites kilns are in some instances purified by passing them a tower or box arrangement filled with an acid-resisting, and kept moistened with water. The sulphuric acid having finity for water is rapidly absorbed by the moist surface, whilst are of nitrogen, oxygen, and sulphurous acid passes away to stone towers.

sulphurous acid is brought into contact with limestone, in of water, the chemical reaction which takes place is a very ne. The carbonate of lime is decomposed by the sulphurous carbonic acid being liberated whilst sulphite of lime is formed. of lime CaSO_3 is itself insoluble in water, but if the water be with sulphurous acid the aqueous solution of SO_2 has the dissolving the sulphite of lime freely. It has been found y in practice to have one equivalent of sulphurous acid in solution to thus dissolve one equivalent of sulphite of lime This, then, is the fluid acid for pulping wood, viz., a solution in aqueous sulphurous acid.

composition of the liquor with respect to the relative proportions o acid varies slightly in different factories. The difference them is unimportant. The Mitscherlich process requires an ing about the following composition:—

Total sulphurous acid SO_2	= 3.4%
Free " "	= 2.1%
Combined " "	= 1.3%
Lime CaO as sulphite of lime CaSO_3	= 1.13%

is analysis it will be seen that only 38.2 per cent. of the total us acid is combined with lime as sulphite of lime CaSO_3 , and remaining 61.8 per cent. exists in the free state. It is also that 76.4 per cent. of the sulphurous acid may be said to exist hite, viz., $\text{CaO}(\text{SO}_2)$.

composition of this fluid is substantially that prevailing in a sing the Mitscherlich process. The relation in the quantity .e., CaO to sulphurous acid, may be very accurately expressed ng that for every equivalent of lime there are present 2.62 ts of SO_2 in the solution. This composition is usually adhered strict regularity; otherwise complications and troubles arise in ng process.

liquor as it flows from the towers is stored in large lead-lined vats ready for use. Its strength is usually ascertained roughly p. Gr. glass, and regulated by controlling the amount of water into the top of the towers.

THE WOOD EMPLOYED.

species of wood almost universally used for producing cellulose distinctively called in Germany is the *Conifera*, *Pinus abies*, *lvestris*, and *Pinus picea*. These varieties of pine wood are ed over very large areas of Northern Europe and the United ffording at present an almost unlimited supply. Norway and alone possess vast forests which annually yield immense quan- ellulose and other wood pulps, manufactured on or near the spot e timber is grown. In many of the States and in certain parts

of Germany and Austria they are equally well distributed, and as extensively used. The cellulose which each of these kinds of the *Conifera* yield is much alike in character, and the fibres are distinguished by comparatively great length and strength.

PREPARATION OF THE WOOD.

The trees are felled and stripped of their branches and partly barked in the forest. They are then cut into convenient sized lengths, and piled in heaps ready for removal at any convenient time. This is usually done in the winter months. In Norway and Sweden the logs are transported to the side of the river, into which they are thrown and floated down stream to the factories placed along its banks. They are then cleaned from the bark by hand labour or by machinery, and if the knots are bored out of them they are sawn into short lengths, so that they may be easily handled. The knots are invariably removed by a machine specially constructed to perform this somewhat difficult work more or less effectually. The logs, freed from bark and knots, are then conveyed to a cutting or slicing machine, which consists of a heavy revolving disc with one or two knives projecting from its cutting face, against which the piece of log is placed or held obliquely. As the disc revolves the knives cut off slices from the log across the grain of the wood. The small pieces of wood fall into a receptacle, from whence they are conveyed to the boilers.

THE BOILERS.

Owing to the principle of slow boiling prevailing in the Mitscherlich system of pulp making, the boilers used are of very large dimensions. Some manufacturers use small boilers, but in most modern works in the United States and elsewhere their capacity is very great, in some cases as much as 10 tons of finished pulp being produced in one vessel at a time. These boilers are usually cylindrical in shape, about 40 feet long and from 12 to 14 feet in diameter, and do not revolve. They are placed in a horizontal position, and are supported on stone walls with strong foundations. Owing to their great length suitable provision must be made in the bearings to allow for the expansion of the mass of iron. Instead of long horizontal boilers, upright ones are sometimes used, but they are not numerous.

The boiler, being stationary, its various accessories must also be adapted to its special case. It is provided with man-hole openings to enable the workmen to go inside to empty and fill it. Two of these are placed in the upper half and two in the lower half, and are closed by strong cast-iron lids held down by bolts. The joint is usually made with a ring of lead. The main valve, which is closed during the boiling process, is fixed to one end of the upper part of the boiler. The exit branch of this valve is attached to a four way branch pipe, each of these branches being provided with a valve. These valves are distributed in the following way, one is attached to the main steam pipe, another to a water pump or water reservoir, the third with the bisulphite of lime liquor store tanks, whilst the fourth branch is connected with the bisulphite of lime liquor towers, or the special apparatus usually employed for recovering the sulphurous acid gas escaping while the pressure in the boiler is being blown down. On the under side of the boiler a valve is also fixed by the aid of which the spent lye is run away, the run off orifice being covered inside the digester, with a perforated disc. As the pressure and temperature are both recorded during the boiling process, it is necessary to have a reliable pressure guage and thermometer suitably fixed to the shell, by means of which careful readings may be taken at any time, and as samples of liquor within the boiler must also be frequently taken and submitted to analysis, a small sample tap is fixed in any convenient place. All these fittings are made of the best bronze metal.

THE SYSTEM OF HEATING.

As already mentioned, the actual process of boiling in the Mitscherlich system occupies such a long period, that if the digester and its charge were heated with direct steam, the liquor would be rendered very dilute, so much so, in fact, that its action on the wood would be rendered practically useless. In addition to this fault the temperature is not so easily regulated with stationary digesters when this mode of heating is used. The contents of the boiler are therefore heated by a system of steam pipes composed of hard lead which covers about one-third of the lower part of the digester. As it sometimes occurs that

one of these tubes bursts, they are arranged so that the damaged one can be shut off. They are divided into separate coils laid side by side, and possess in the aggregate a total length of about 3,000 feet. In some cases the total length of the tubes exceeds this. As a general rule, however, when this system of heating is employed, the amount of coil heating surface required is 50 square feet per 1,000 cubic feet of digester capacity. The four pipes being independent of one another, it is evident that they must pierce the shell of the digester in double the number of places, so that the inlet ends can be attached to the main steam pipe, and the outlet ends to the hot water traps. The admission of steam to the individual coils is, of course, regulated by valves. The condensed water flowing from these pipes is frequently tested to ascertain if any acid is present in it.

THE DIGESTER.

The digester shell itself is made of strong steel plates with double rivetted butt joints in the usual manner, but as sulphurous acid rapidly corrodes iron, it is necessary to protect the inside from the action of the acid with an acid resisting lining. Many inventions and schemes have been proposed for this purpose. It was natural enough that sheet lead, which withstands the action of bisulphites, should be first thought of and applied. Mitscherlich, however, was the first to suggest the use of a lining composed for the most part of hard acid resisting bricks or earthenware blocks, and his method of lining digesters in this way is as ingenious as it is useful and effective. Much, indeed, of the ultimate success of the manufacture depends on the care and attention paid to the mode of executing this work. It is found to be absolutely necessary to cover every part of the interior of the digester. The method in practice at the present time is as follows:—The inside of the boiler plate is, first of all, carefully and thoroughly cleansed and painted with a mixture of pitch dissolved in hot tar. Over this there is then carefully laid thin sheets of lead foil, the sheets being gently pressed into all recesses without tearing it. The sheet lead is put in in narrow pieces at a time, and these are then covered with the earthenware lining. For this purpose specially made hard burnt non-porous bricks or blocks are used. In form and size they resemble ordinary fire bricks, with rabbet and tongued edges, in order that the joints can be made with the greatest possible perfection. The cement used to make the joint good is ordinary Portland cement. Some manufacturers mix silicious substances with the cement, but, in the opinion of many, pure cement gives the best and most satisfactory results. The whole lining must be most carefully and skillfully performed, especially around the manhole and other openings, where the risk of damage to the boiler is greatest. These parts are themselves lined with strong sheet lead, the free edges of which are folded over the iron, and then covered with brickwork as far as the opening. Sometimes flat tiles are used instead of bricks, and thick sheet lead instead of thin foil, the object being to obtain greater strength and durability.

It has been found that the liquor does not act so detrimentally on the stone lining, as the gaseous sulphurous acid and steam, which occupies the upper part of the boiler, and, consequently, some pulp makers set off the thickness of the lower half of the lining, making it thinner than the upper one. The recessed lower half forms a cavity in which the steam heating coils are laid.

II. THE WOOD BOILING PROCESS.

The *modus operandi* of the boiling process is itself simple. The bottom manhole covers are securely fixed in position, and the boiler filled through the upper ones with the wood chip, and equally levelled. The top covers are then screwed down, and steam introduced into the boiler by opening the valve communicating with the main steam pipe, whilst simultaneously the wash-lye valve is also opened. The object of this is twofold, viz., to expell all air from the pores of the wood, preparing it, as it were, for absorbing the lye; and, also, to dissolve and remove a portion of the incrusting materials from the wood. To do this effectually the steaming is continued for eight or ten hours. At the beginning of the process the condensed water flowing from the boiler is pale yellow, but assumes a dark brown colour after a while. When the steaming is finished the waste lye and steam valves are closed, and the valve communicating with the bisulphite of lime store tank opened. As the liquid enters the digester, partial vacuum is

formed, and in virtue of this, the boiler and pores of the wood are rapidly filled with the necessary quantity. When this is accomplished the acid and other valves, etc., are closed, and the boiling process proper begins. The steam is gently admitted to the heating coils and the temperature of the digester and its contents raised very gently. At first the temperature stands at about 45° C. (=113° Fah.). By the time it reaches 70° C. (=158° Fah.) the chemical reaction between the bisulphite of lime and the incrusting matters in the wood begins to take place. In two or three hours the pressure within the digester begins to rise, and after 24 hours heating it reaches about 30 pounds per square inch above atmosphere. In 36 hours it is usually about three atmospheres, or from 45 to 50 pounds above atmosphere pressure, and in most factories it is seldom allowed to exceed this. When it does rise beyond these limits, the valve communicating with the towers is opened, and a small quantity of steam and gaseous sulphurous acid blown off, whilst the steam valves attached to the coils are at the same time closed. The heating and digesting process is conducted with care under the direct supervision of skilled workmen and an experienced chemist. Samples of the boiling fluid are withdrawn at stated intervals, and these tested at once to arrive at the extent to which the chemical action has taken place. These results are recorded together with the pressure and temperature. As an example of the method of recording the details of the boiling process, Schubert quotes, the following, which is a faithful record of the work performed in a continental pulp works employing horizontal boilers and the Mitscherlich system.

Date.	Time.	Press. lbs. sq. in. above Atmosphere.	Tem. ° C.
23rd April	12 noon	0	45
"	8 p.m.	9	72
"	1 a.m.	11 1/4	85
24th	6 "	15	96
"	11-30 a.m.	22 1/2	105
"	2-30 p.m.	26 1/4	108
25th	6-30 "	30	112
"	1 a.m.	37 1/2	115
"	6 "	42	116 1/2
"	9 "	45	119
"	12 noon	42	120
"	3 p.m.	33 3/4	119
"	10 "	31 1/2	118

In this instance the filling of the digester was commenced on the 23rd April at 1-30 p.m. and finished at 11 p.m., a period of 9 1/2 hours. After closing the manholes, etc., the wood was steamed as above described from 12 o'clock midnight till 8 a.m., another period of eight hours. The boiler was then filled with bisulphite of lime liquor of 5° Bé., which occupied 3 1/2 hours. The maximum temperature and pressure were 120° C. and 45 pounds respectively.

DURATION OF THE PROCESS.

As a general rule the time occupied in steaming the wood is about 20 hours, whilst the period of preliminary heating is about 10 hours and that for the actual boiling 40 hours. If there be added to this the time occupied in filling, emptying, examining the interior of the digester, etc., the whole process of digesting will be found to occupy a period of about 100 hours. It is obvious, therefore, that the preparation of wood cellulose by this system takes a long time, but as a set-off against this, it may be said that the excellence of the product is beyond question. It is worth noticing that at the above rate of boiling, eight or ten digesters are emptied per month.

As already mentioned, during the first part of the heating, samples of the liquor are withdrawn from the boiler and tested at stated intervals. Towards the end of the process the testing becomes more frequent, that is to say, every 15 minutes or so. The way these samples are tested is simple. A measured quantity of ammonia is placed in a long glass tube, and to it is added a known quantity of the bisulphite fluid direct from the sample tap. The mixture is then shaken up and allowed to stand at rest for a short time. The ammonia decomposes the remaining bisulphite of lime, and precipitates normal sulphite of lime. The quantity of this precipitate which accumulates in the bottom of the tube, is a guide to the workman

as to the extent to which the chemical action has gone, and it is never allowed to go below a fixed limit.

THE CHEMISTRY OF THE PROCESS.

The chemical reaction which takes place within the boiler between the sulphite solution and the incrusting materials of the wood is a very complicated one, and its true nature is but imperfectly understood. Many attempts have been made to explain it in a chemical sense, and to reduce the reaction to formulæ. Some of these investigations are highly instructive, although they may fail to adequately explain the true nature of the change. Probably Pedersen's series of investigations, an abstract of which appeared in the pages of this Journal (Volume IX., No. 219, page 62), are the best on this subject, and we commend our readers, who are interested in this subject, to a careful perusal of them. It is sufficient for our present purpose to point out that the compounds formed seem to possess a tolerably definite constitution, although they are readily decomposed under certain prevailing conditions of the digesting operation, and especially towards the end of the process. In the Mitscherlich process the reaction goes on very slowly till towards the end, when extra watchfulness must be exercised and the process stopped before a counter reaction sets in, which has a tendency to destroy the already formed cellulose.

CONCLUSION.

Immediately the digesting process is found by chemical test to be finished, the valve communicating with the bisulphite of lime towers is opened, and the temperature reduced by blowing off the pressure. This is sufficient to prevent any further action of the fluid on the cellulose. When the pressure has been reduced to a few pounds per square inch above atmosphere, the waste liquor valve is opened and the digester drained. By the time the liquor is run off, the boiler is free from pressure, and the manhole covers may be removed. Water is then introduced, and the cellulose washed out into large tanks placed immediately beneath the digester, where it is further washed till free from waste lye. It is then conveyed to a machine by the aid of which it is smashed up and purified, and finally is made into thick sheets, dried and perforated (to meet the requirements of most Custom authorities) on a paper machine, so as to be ready for export.

THE TREATMENT OF SEWAGE.

(Specially contributed.)

THE question of how we are to dispose of our sewage, has received a great deal of attention in these columns during the past year, and elsewhere in this issue we have made reference to the chemical investigations which have been made in the course of the last twelve months.

There is another even still more important point, however, which must not be overlooked, and that is to see if possible what advance has been made towards practically accomplishing this task. There are a great number of processes in existence, all of which claim special merit, and it is therefore a difficult matter to say which is the best, until one and all have been given a fair trial under the same conditions, working on the same sewage in a normal state.

With this object in view, the Salford Corporation have for some time past been engaged upon a series of experimental trials at their works at Mode Wheel. Accounts have been given of a few of these trials in the daily press, but so far we believe a comprehensive review of the same has not been published. We have, however, followed these experiments since the commencement, and from our own observations, and the information we have obtained from those whose processes have been under trial, it appears that up to now about fourteen different methods have been experimented upon.

Any ordinary sewage consists of a mixture of solids in solution in water, and solids in suspension, so it would appear at first sight, that a great amount of impurity might be removed by simple filtration; but experience has shewn that it is impossible to filter crude sewage on account of the albuminous matter clogging the filter. Before successful filtration can be effected therefore, it is absolutely necessary to coagulate these albuminoid compounds, and this as a rule is done by the aid of chemical reagents. In considering the merits of any process, therefore,

we have to bear in mind the fundamental principle that the coagulation of the albuminoid matters is an essential feature.

Reviewing the processes which have been made the subject of experiment, we find they are capable of being divided into two classes, namely, precipitation processes pure and simple, and processes combining precipitation with subsequent filtration. The majority of the processes come under the former classification, and we shall therefore devote our attention firstly to

PRECIPITATION PROCESSES.

In these processes a variety of chemical compounds are employed, but on taking the results which have been obtained, it appears that the compounds which have been used with the greatest success are salts of alumina and basic persalts of iron. Both classes of salts have formed the subjects of patents; as far back as 1864, August Scheerer patented the use of the latter class, and Alfred Bird the former class in the following year.

There are of course many other compounds which could be used to advantage for this purpose, but as a general rule their excessive costliness precludes all possibility of their being employed in a general way.

Among the more recent processes which come under this heading, there should be mentioned the "Alumino-ferric" process, the Standard Sewage Company's process, the "Clarine" process, also Wardle's, Bell's, Barry's, Archbutt's and Lockwood's processes, and the Amines process.

To describe each of these *per se* would entail useless repetition, to avoid which we propose to describe briefly the first mentioned process as being typical of the others.

THE ALUMINO-FERRIC PROCESS.

This now well known process was invented by Peter and Frank Spence of Manchester, and is not only used for the purification of sewage, but also for clarifying water used in the arts and manufactures, and for clearing and purifying drinking water. The process is purely one of precipitation, the inventors having combined the two materials giving the best results as the name sufficiently indicates. The alumina of the material causes coagulation and rapid settlement of the albuminous matters of the sewage, while the iron present combines with any traces of sulphuretted hydrogen present, so removing the smell.

Dr. Angus Smith in speaking of the special advantages of alumina as a sewage precipitant, says:—"Alumina possesses a very peculiar and valuable property of its own, namely that of combining with certain colouring, carbonaceous and nitrogenous matters, and locking them up into its substance, which action takes place between the hydrate of alumina precipitate, and the albuminoid matter in the sewage, both in solution and suspension."

Dr. Carter Bell having performed experiments upon many samples of sewage with alumino-ferric cake, found that upon its addition a very decided change took place; the colour disappeared, the samples clarifying quickly, being left without odour. There is a great reduction in the organic matter, the albuminoid ammonia being reduced to at least half its former quantity.

These results are confirmed by the use of this precipitant on the large scale, for which purpose the Alumino-ferric may be applied in two forms. First, as solid slabs as manufactured. Second, in the form of a solution.

For small sewage flows, where little or no supervision is available, the Alumino-ferric is used in slabs, about 21 inches long, 10 inches wide, and 4 inches thick.

An open cage being provided and placed in the sewage flow. The slabs placed in this cage gradually dissolve in the sewage, which then flows into settling tanks, to allow the impurities separated by the action of the material to settle out, and leave a clear effluent.

For large sewage flows such as over 500,000 gallons per 24 hours, it is preferable to dissolve the slabs of Alumino-ferric and allow the solution so obtained to run in a regulated stream into the sewage flow, by which means a better regulation of the amount used is possible, our illustration over leaf shewing a convenient way of accomplishing this.

The sewage so treated is usually run into settling tanks, but may also be passed through separators for which treatment the process is equally well adapted. The effluent so obtained is suitable for either passing direct into a stream, or if desired may be used for land irrigation.

The chief advantages of the Alumino-ferric process are its simplicity, the low price of the material, and the good results which have hitherto been obtained.

In the other processes which come under this heading, either basic ferric salts (chiefly sulphate and chloride), or lime are used as the precipitating agents. In some a mixture of lime with an iron salt is employed. The action of all the various precipitants is virtually identical, but the percentage purification varies considerably. Lime and mixtures of lime with iron compounds average about 30% to 33%, while basic iron salts effect as much as from 54% to 56% of purification. It is essential that basic salts are used however, as saturated salts do not seem to give any better, or even as good results, as lime alone.

We must now turn our attention to the second class or

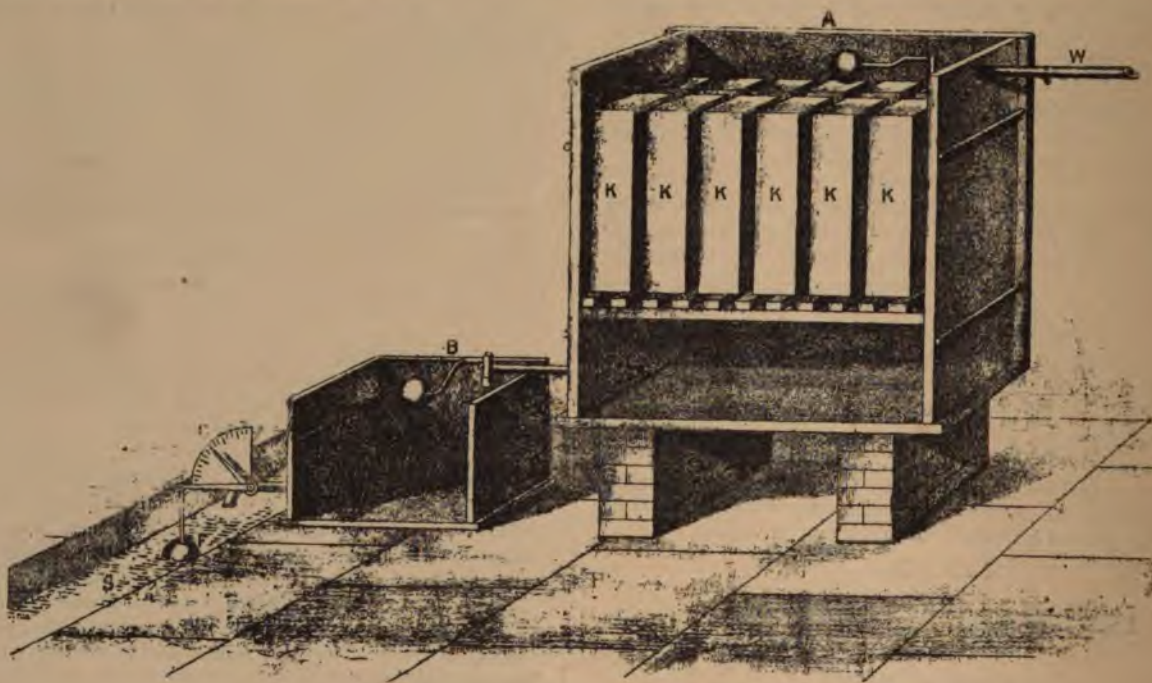
into the old lime process, with all its concomitant difficulties and nuisances.

This was recognised by the pioneers of the "International" process and in it lime finds no place.

To so completely treat sewage by precipitation alone, as to produce an effluent which will not undergo secondary decomposition, is sometimes possible, but often requires so much of the chemical reagents as to be impracticable; and to filter crude sewage, is, as we before stated, impossible.

A combination of the two, therefore, is a most rational arrangement, by means of which good results might reasonably be expected.

The first part of the International process is precipitation in tanks, and the second is oxidation through prepared polarite filter beds.



COMBINED PRECIPITATION AND FILTRATION PROCESSES.

In these processes the sewage after the albuminoid matters have been coagulated by chemicals and largely removed by subsidence, are still further purified by passing the partially treated sewage through specially constructed filters. By this means the remainder of the suspended matters are removed, and the soluble albuminoids more or less completely oxidised and rendered innocuous, by the aëration and nitrification to which they are subjected. The more important processes are, The Polarite process, The process of the Porous Carbon Co., Bell's process, Spencer's Carbide process, and The Electrical process. This latter process is really intermediate between the two classes, but comes more nearly within this category than the one previously dealt with.

Following the course adopted with the first class of processes, we take one from amongst the foregoing as a type of the others, and for this purpose refer to

THE INTERNATIONAL PROCESS.

This process has now been before the public for a period of five years, and has triumphantly survived the naturally keen criticism of all persons interested in such matters. The production of a pure effluent and the disposal of the sludge with a minimum cost, and without the creation of a nuisance at or about the works, being acknowledged to be the highest reasonable demand. Precipitation, pure and simple, has been practiced on a large scale, and has met with considerable success, but at the bottom of many of these processes, there lurks the chemical monstrosity lime. Wherever lime figures as an ingredient amongst the chemicals used, the experience of practical men is, that the method quickly lapses

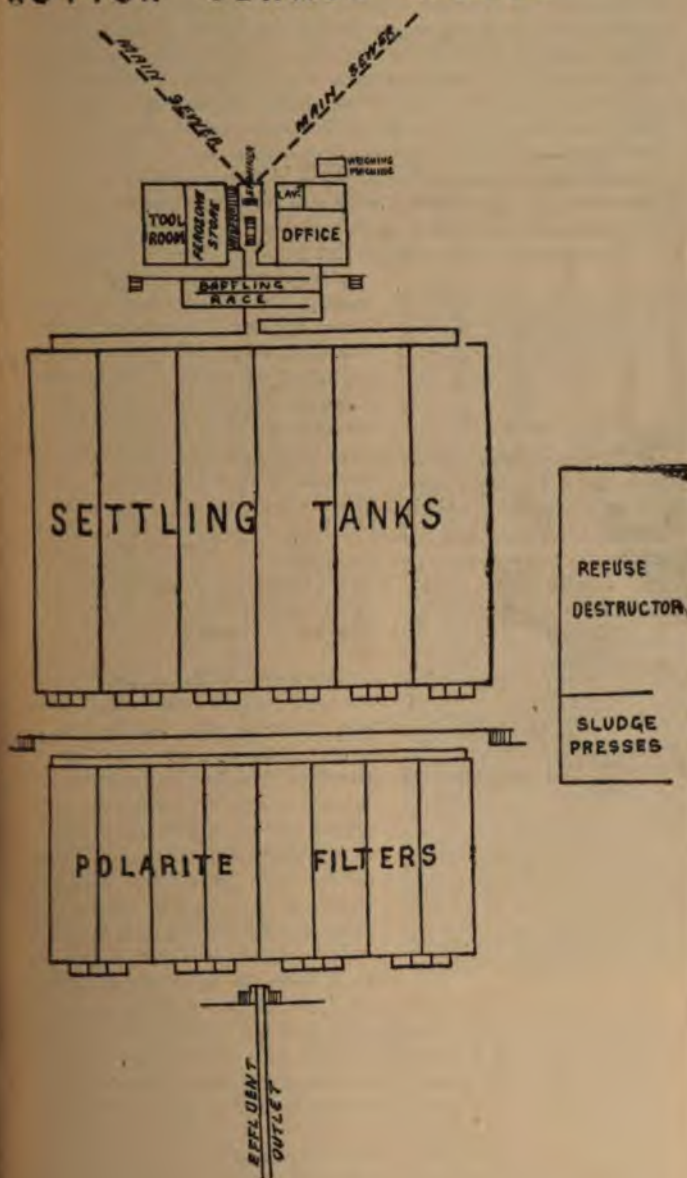
The precipitant Ferozone is first added, and the sewage, after flowing through a series of tanks, in such a manner as to deposit as nearly as possible the whole of the solids, is passed through a separator of an entirely new kind, and here the flocculent matter which may escape precipitation is removed, and thereby prevented from sealing up the pores of the filter beds, in which clarified and partially purified condition the fluid is turned on to them. These beds are made up of sand, gravel and polarite, the latter being the material which effects the oxidation or combustion of organic matter in solution. The sand and gravel act as strainers or percolators, and the polarite as an oxidiser, the latter being of course dependent for its activity upon oxygen, derived principally from the air, and partly from that present in solution in the fluids, if any.

The actual forces at work in a well constructed filter are somewhat complicated. All particulate matter including living germs are strained out from the fluid, as cotton wool will strain them out from the air, or if any pass on through they must be of that type which can withstand contact with oxygen, and therefore, not of the disease giving kind. Further than this straining action, if the filter be constructed partially of a porous material, and not of dense non-porous sand grains, the filtering fluid with its dissolved impurities, streams through the pores of the material in the form of a mist or cloud; whilst in this finely divided condition, the oxygen resident in the pores, and the which was originally dissolved in the fluid is made to actually touch and therefore to act chemically upon the impure matters. This is the process of wet combustion, and by it the unwholesome matters are positively burnt up into innocuous inorganic substances.

Then again at least upon the surface of the filter, there is generally some action going on by nitrification, brought about by the intervention of certain kinds of microscopic organisms, which action is claimed by some bacteriologists to be the most potent of all agents.

The following table gives a few examples of the results of purification, obtained by the International process upon different types of sewage.

ROYTON SEWAGE WORKS



ANALYSES OF EFFLUENTS.

Results expressed in grains per gallon.

Sample.	Free ammon.	Albd. ammon.	Chlorine.	Kind of sewage.	Remarks of the Analyst.
Hendon Effluent..	'0218	'0056	6'02	Domestic and Laundry	Clear and odourless.
Salford Effluent..	'0112	'0150	4'2	Manufacturers Refuse	This is a first class effluent.
Acton Effluent ..	'154	'0225		Ditto	Good effluent.

The process is at present working at about five and twenty different places and giving satisfaction in all cases.



DURING the past year, an exceptionally large number of great chemists have passed away. Such unfortunately being the case, we have prepared the following, to afford our readers a brief outline of the lives of the most illustrious and familiar. First and foremost is the name of the great

A. W. VON HOFMANN,

Ætat 74.

Anyone who follows the history of the development of chemical science, and the enormous extensions of chemical industry, must be astonished at the number of most important achievements which make the name of A. W. Hofmann one of the best known and most celebrated in the whole arena of science.

He was born on the 8th of April, 1818, at Giessen, and was the son of J. Ph. Hofmann, the University architect. His education was obtained first at a boys' school at Mehlbach, and then at the Gymnasium of his native town. In the year 1836 he visited the University of Giessen, without having decided upon any definite line of study. He soon took up the pursuit of the law, which, however, he exchanged after a short interval for that of chemistry. Hofmann was a zealous student of the immortal Liebig, to whom he soon became a personal friend, and finally was appointed his assistant. His first extended investigation, which formed at the same time as his dissertation, was upon the volatile bases of coal tar (1841). In this work the presence of aniline and quinoline was proved in coal tar, and it became the starting point of a series of other investigations of the greatest importance, both for theory and practice. For another paper upon the changes of indigo, in which the ambitious young chemist decided the question of the replacement of hydrogen by chlorine, at that time vigorously discussed, the Pharmaceutical Society of Paris awarded him its prize medal.

In 1845, Hofmann left Giessen to obtain a teaching position at the University of Bonn, where he lectured upon agriculture. At this time a laboratory was being erected in London, upon the plan of that in Giessen, and Hofmann, warmly recommended by Liebig, received an invitation to come to London and undertake the organisation and management of the new chemical school. The young investigator accepted this honourable position, and in the autumn of 1845, after having been appointed Extraordinary Professor at Bonn, went to London, where he soon gathered around him a circle of gifted scholars, who later became themselves eminent workers in science. In 1853, the chair of chemistry at the Royal School of Mines became vacant, by the resignation of Playfair, and Hofmann was appointed to this position, though he also remained at the head of the Royal College of Chemistry, which was affiliated by the Government to the School of Mines. In the year 1856, the position of Warden of the Mint was conferred upon him, and in 1861 he was elected president of the Chemical Society.

Hofmann had already been repeatedly solicited to return to Germany as a University professor, and at last he responded to the invitation of the Prussian Government to undertake the erection and management of a new laboratory at Bonn. In view of this work, he visited almost all the larger laboratories of Europe, in order to acquire experience to be utilised in the erection of the new building. He never, however, undertook the teaching work at the splendid institute which was thus erected, since in 1864 he was summoned to the chair of chemistry at Berlin, vacated by the celebrated Mitscherlich, and took up the work there in 1867. He also conducted the building and organisation of the first chemical institute at Berlin.

In Berlin, a rich field of work was found, in which he laboured for many years with the greatest success. As a teacher, he always gathered round him a circle of zealous students, many of whom took leading places both in science and industry; and as an investigator, he gave to the world a remarkably large number of most important researches. In the year 1868 he founded the German Chemical Society, which largely owes to him its present high position among similar associations.

We must refrain from giving even a list of Hofmann's numerous researches, which embrace all branches of chemistry, though they are chiefly connected with the development of the organic portion of the science, a fuller account of his work having been already given in Vol. II., No. 48, of this *Journal*. We must, however, mention that his continued researches upon aniline and its derivatives established a clear idea as to the relation which these most important substances bear to ammonia. Hofmann also recognised the possibility of replacing the second and third hydrogen atoms of ammonia by alcohol radicals, and this led to the more complete knowledge of the secondary and tertiary amines, and to the discovery of the quaternary ammonium bases. These same researches, moreover, as is now well known, contributed much to our knowledge of the organic bases of the vegetable kingdom, and may be considered as the fundament of the colour industry.

As an investigator, Hofmann was perhaps most widely known by his epoch-marking researches upon the colouring matters obtained from coal tar. As early as 1858 he prepared magenta by the action of carbon tetrachloride upon aniline, and devoted more than a year's work to its further examination. Shortly afterwards he discovered the well-known violet, which was at once manufactured on the industrial scale and in enormous quantities. The important investigation upon methyl green (in conjunction with C. Girard), as well as on the nature of chrysoidine and eosin, and the colours obtained from naphthylamine and xylidine, were associated with this work. Mention must also be made of Hofmann's remarkable researches upon guanidine, formaldehyde, and the isonitrils, the last of which led to the well-known isonitril reaction for the primary amines. Our knowledge of the mustard oils was also greatly extended by his work, and, finally, we must mention his work on the various alkaloids. Up to the very last days of his life, Hofmann continued his work in the laboratory, and only a few months ago published in the *Berichte*, of the German Chemical Society, a paper entitled "Polymeric Methyl Mustard Oils," which contained the first results of an extended research which he had planned. The hope expressed at the close of this communication, that further details would be given, was, however, never to be fulfilled.

The other branches of Science have also largely gained by his work, and inorganic, analytical, technical, and forensic chemistry owe much to him. All are acquainted with his apparatus and method of determining the vapour densities of substances, which has rendered the most valuable service to science; and a great aid to the teaching of chemistry in schools was given by his apparatus for illustrating the fundamental volumetric relations of the gases.

The frequent requests for advice from official quarters were always met by him with the greatest readiness and unselfishness, and his wide knowledge was in many ways freely communicated. Examples of this are his remarkably lucid lectures at the Royal Institution, and in the scientific association of the "Singakademie," in Berlin. He was also active in numerous honorary posts. Thus he was one of the judges at

and reported upon the exhibits in the Universal Exhibitions in London in 1851 and 1862, in Paris in 1855 and 1867, and in Vienna in 1873. In this connection he wrote a valuable treatise on organic chemistry and its application to perfumery, an instructive report on the London Exhibition of 1862, and a similar one, in conjunction with Girard and De Laire, upon the coal tar dyes at the Paris Exhibition of 1873. Well known, but unfortunately incomplete, is the report upon the Universal Exhibition of Vienna, which was also intended to be an account of the development of chemical industry during the last decades. The reports published during the time of his residence in England upon the water supply of London (in conjunction with Graham and Miller), upon the addition of methyl alcohol to spirits of wine (with Graham and Redwood), and on the canal system of London (with Henry Witt), give ample proof of the skill, knowledge, and conscientiousness with which such subjects were handled by him.

His literary works, and the honours which were justly showered on him in reward for his services in the cause of science, are too numerous and well-known to admit of special reference here, the greatest tribute to his memory being, perhaps, that to which special attention was

drawn recently in these columns, namely, the establishment of a Hofmann Institute. With the death of Hofmann, closed a life as rich in work, as fruitful of results; and his name, as an investigator and teacher, will be for ever enrolled in the archives of chemistry, both in this country and abroad.

JEAN SERVAIS STAS.

Ætat 73.

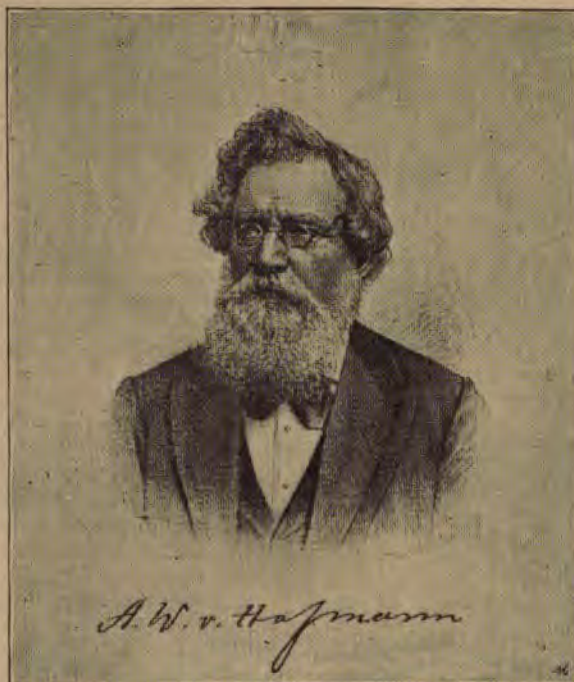
The death of this eminent chemist did not actually take place in the passed year of 1892, but occurring as it did at the termination of 1891, it has been thought fit to include the illustrious name of Stas in this review since it affords such a fitting opportunity of chronicling some of the work of one of the most painstaking, accurate, assiduous and skilful devotees of chemical research that ever lived.

He was born at Louvain, and died at Brussels on December 13th, 1891.

The magnificent services rendered to science by this great Belgian chemist were mainly investigations into the foundations for certain speculations as to the unity of matter, and his work may be roughly divided into two groups—one relating to the atomic weights of the elements, and the other to the spectra of the elements when volatilized.

His first important work was an investigation of phloridzine in conjunction with De Koninck. Shortly after the isolation of this substance, Stas determined to abandon his original intention of following the medical profession and prepare himself to follow up his inclination for chemical investigation.

With this view he went to Paris and endeavoured to enter the laboratory of Dumas. At first he was unsuccessful, but in describing the work of this marvellous man, Mr. E. W. Morley recites how the indomitable perseverance which characterised the work of Stas in late years was evinced even at this early stage, for he went again and again to visit Dumas; finally, the servant who opened the door, while again answering "M. Dumas is not at home," by some gesture invited the resolute young man to enter, and showed him where to find Dumas. Some weeks later, Stas was a pupil in the laboratory of Dumas, in the company of other students who were afterwards to take honourable places in the ranks of science.



According to the same authority, Stas now continued the investigation of phloridzine. He determined its formula, and the formula of some of its principal derivatives. He found that dilute acids acted upon it to produce glucose and phloretin. Liebig and Woehler had, two years before, noticed a similar reaction in case of amygdalin, and Piria, a fellow-student in the laboratory of Dumas, had found that salicin also belonged to the class of compounds now called glucosides. This work on phloridzine formed the subject of an article of forty pages in the *Annales de Chimie et de Physique*, which attracted the attention of Berzelius; and although chary as this noted Swedish chemist always was in praising, he concluded his remarks on the article by stating, "From a chemist who begins like this, much may be expected."

A little while later Dumas and Stas began a re-investigation of the atomic weights, but owing to Dumas being pre-occupied with other matters, the work was abandoned by him, and it was carried on by his pupil. In carrying out the determinations of the atomic weights, many difficulties presented themselves, but the trouble to which Stas went, in order to avoid every possible experimental error, was only as great as the persistency he displayed when endeavouring to enter Dumas's laboratory at the outset.

Stas used every refinement as to accuracy of weights and methods of weighing, but these need not be described. His study of vessels suitable for use in his determinations was most accurate and thorough. As a result of much painstaking, he was able to heat flasks for a whole day to such a degree that the glass became milky and white without in the least altering their weight. He proved that below 300° to 350° C, neither hydrochloric acid nor nitric acid had any appreciable action on the glass used by him. Berzelius had doubted the inalterability of glass and porcelain employed in analysis, and his doubts were pronounced by Stas to be well founded. No one will ever know the amount of labour involved in removing this source of error.

He went even further into the properties of silver chloride and bromide, one object being to study the means of determining, with the greatest accuracy, the relation between silver and either of these halogens, by Gay Lussac's method. This method he perfected after long and laborious work. Some of the titrations by his perfected method employed six persons for nine hours in determining the point where silver and chlorine were equivalent in the solution used in the experiments; the mean error of these experiments was one part in 400,000, notwithstanding the fact that the halide was prepared by different methods. Twenty-four experiments are contained in this series, and included an explanation of the way to obtain pure hydrobromic acid, with the object of replacing chlorine by bromine in the wet assay of silver, since it is easy to determine the point where silver and bromine are equivalent in a liquid, for silver bromide is less soluble than silver chloride.

Following up Lockyer's statement in 1878, that the elements, judging from the behaviour of their spectra, were compounds dissociated by heat into their elements, Stas experimented on pure bodies—that is to say, purified as he could purify. It took eleven years, we are told, to prepare substances which Stas would call pure. He obtained potassium chloride which he called perfectly pure; especially was it absolutely free from sodium. He experimented on silver, sodium, potassium, lithium, calcium, strontium, barium, and thallium. He found that at the highest temperatures at which he worked, even at the melting point of iridium, the lines of the spectra of these elements

remained the same, and these elements were not dissociated or decomposed. This work, costing so immense an amount of labour, may well be considered the crowning work of Stas.

Yet it is a fact that, when quite recently the Belgium Academy of Sciences unanimously petitioned the Government to purchase the valuable apparatus and chemicals of the departed *savant* and deposit them in a public museum, so as to obviate the danger of their being dispersed, and petitioned also for the necessary funds for a new edition of all the memoirs of Stas, which are no longer to be procured; after a long delay they received a complete refusal from the Government, it being alleged that "the schools were sufficiently supplied with apparatus and preparations." His name has been duly honoured in this country, however, for on the 13th of December, 1892, that being the first anniversary of the death of Stas, the Chemical Society held an extra meeting, when a paper on Stas and his work, by Professor J. W. Mallet, was read and discussed.

The place of Stas on the roll of scientific men will doubtless long continue to be unique. The gift of so many admirable qualities, in so high a degree, and in such well-ordered balance, can recur but seldom. Many may possess patience as unwearied and wonderful. Many may be as resolute in endurance of hard labour; though not to many is given to work without interruption for sixty consecutive hours in circumstances of extreme physical discomfort without some fatal oversight or momentary failure of attention. Many may attain a love of the truth as conscientious, and a forgetfulness of self-interest as entire. Many may as thoroughly grasp the whole amount of knowledge related to a given research so far acquired by men. Some may possess as sound a judgment; many, as clear and true a penetration into the nature and causes of phenomena; many, as acute insight into sources of error; some, a manipulative skill as unerring. But patience so wise and resolute, combined with so entire a forgetfulness of personal relations to the truth, and also with such insight and acuteness, assisted and balanced by so much soundness of judgment, will not quickly be seen again.



WILLIAM DITTMAR.

Ætat 59.

Prof. W. Dittmar, was born at Darmstadt, Germany, and his name forms one of a list of distinguished chemists such as Liebig and Schorlemmer, who were his contemporaries. He originally prepared himself in his early days for the profession of a pharmacist, but in 1857 he entered the laboratory of Bunsen, who noticed first the evidences of after greatness in his young student. A few years later he was brought by Sir H. Roscoe to Manchester to act as his private assistant at the Owen's College. In 1861 he left, however, and became chief laboratory assistant to Sir Lyon Playfair, thus becoming the teacher of Professor Dewar, whose work is in itself sufficient testimony to the excellency of Dittmar's teaching powers. After eight years Dittmar returned to Germany and lectured on meteorology at Poppelsdorf. In 1872 he again visited the United Kingdom, holding the post of chief laboratory assistant to Professor A. Crum Brown. About a year later he accepted the chair of Practical Chemistry at Owen's College, but he did not hold that position long. He returned to Scotland, where he occupied the Chair of Chemistry in the Andersonian University at Glasgow, a post which has long been remarkable more for the eminence of its occupants than for its monetary advantages. Whilst

occupying this position the majority of Dittmar's best work was done; not in practical chemistry alone, for his contributions to chemical literature were of great importance and covered an extensive field.

Though practically occupying a position which would lead him to prosecute theoretical research, it is not generally known that Dr. Dittmar had a true appreciation of the claims and bearing of applied chemistry, and contributed extensively to the progress of chemical industry by a number of articles which appeared in the *Chemische Industrie*, he also being one of the founders of the Institute of Chemistry, acting as a member of the Council from 1877 to 1880. In 1884 Dittmar published his report on the composition of ocean waters, which comprised 77 analyses of water. Each of these analyses was treated in his report in an exhaustive fashion, presenting a task of colossal proportions, his conclusions from his investigation being that the occurrence of free carbon dioxide in ocean water was exceptional, that in surface waters the proportion of carbon di-oxide increases as the temperature falls, and *vice versa*, and that the ranges of temperature being equal, the proportion of carbon dioxide in the surface waters of the Pacific is lower than in those of the Atlantic.

Among the principal educational works which Dittmar produced are "A Manual of Qualitative Chemical Analysis," "Elementary Treatise on Analytical Qualitative Chemistry," and his "Tables to Facilitate Chemical Calculations." Subsequently his "Quantitative Chemical Analysis," appeared, followed by his "Chemical Arithmetic," which was a work of singular originality. All those who knew Dr. Dittmar have testified to the frankness of heart which characterised him as a man, whilst his integrity as a chemist and controversialist was equally well known.

CARL SCHORLEMMER.

Ætat 58.

Dr. Carl Schorlemmer was born at Darmstadt, near the home of Prof. Dittmar, whose career has just been outlined. The former studied at Gießen, first coming to England in 1858, when he shortly succeeded Dittmar as assistant to Sir H. Roscoe, at the Owen's College, Manchester.

His name has since been honourably coupled and perpetuated with that of Roscoe by their joint production of a work on "Organic and Inorganic Chemistry."

Dr. Schorlemmer occupied the chair of organic chemistry specially created for him at Owen's College; while his unique knowledge of the literature relating to organic chemistry rendered him exceptionally well fitted for the task which he undertook in writing a comprehensive treatise on organic chemistry. Unfortunately this, the great work of his life was destined never to be completed.

He was, however, not only an investigator of organic chemistry, but was well versed in many other branches of science.

Though not gifted as a lecturer, he was pre-eminently successful as a laboratory teacher, while he was a most entertaining conversationalist, his range of knowledge on most subjects being surprisingly comprehensive.

The importance of several of Schorlemmer's discoveries, more particularly that of dimethyl and ethylhydride, and their relation to applied chemistry, are worthy of something more than passing comment, and a movement is now on foot for the establishment of an organic laboratory at Owen's College, to be called the Schorlemmer Laboratory. It is our fervent wish that this scheme may be brought to maturity, and a lasting and most fitting memorial be thus established to perpetuate the name of such an eminent chemist.



A. NORMAN TATE.

Ætat 55.

Mr. A. Norman Tate, was born February 24, 1837, at Somerset. He was educated at Wells Chapter Grammar School. After leaving this institution he engaged for six or seven years in the fullest study and most careful practice of pharmacy.

Developing a taste for chemistry he entered the laboratory of Muspratt, at Liverpool. After spending much profitable time with Muspratt, during which period he read several papers before the Chemical Society, he was appointed chemist to Messrs. John Hill and Co., of Widnes.

In the course of about three years or so he set up for himself as an analytical chemist in Liverpool.

In that capacity he made a special study of petroleum, and subsequently published a book on "Petroleum and its Products."

The result of this specializing was that he temporarily resigned his practice and went to the Isle of Man, where he superintended the construction of an oil refinery, and afterwards designed and erected a Flintshire plant for refining the oils obtained from distilling

He, in the course of time, gave up his practice again, and began to devote his spare time to the furtherance of his elementary education, doing much of the most arduous and laborious work in connection with the Liverpool School of Science.

He officiated as Chairman of the Liverpool Section of the Society of Chemical Industry, and was a member of the Council of the Institute of Chemistry, in addition to being a member of several scientific societies.

He was not without his hobbies, and in 1888 started a paper called "The Chemicalist," which, owing to his bad health, he was unable to continue, however, after two years abandoned it. He spent considerable sums of money on these hobbies, especially on his own School of Technology and Chemistry at Hackins Hey. He was, though quiet, was laborious, and working day had, so as to spend his time in his profession. He was esteemed for his ability and for his unsullied character, while his loss will be deplored by those who knew him in private.

THEOPHILUS REDWOOD.

Ætat 86.

Dr. Theophilus Redwood was born at Boverton in 1806. At an early age of 16 he came to London and there served his apprenticeship. On the founding of the Pharmaceutical Association in 1841 he was appointed to the chair of pharmacy, and about two years later succeeded Fownes as Professor of Chemistry. He occupied for a considerable time the position of secretary to the Chemical Society, and the Pharmacopœia Committee, he also acted as treasurer for five years to the Chemical Society. He contributed several works of importance to the pharmaceutical literature of the day, in addition to acting as the editor of the *Pharmaceutical Journal*. Some of his most important works perhaps were his preparation of the 11th edition of the "British Pharmacopœia," and his investigation in conjunction with Graham and Hofmann in regard to the supply of free from duty, for pharmaceutical purposes. He was on the Council of the Institute of Chemistry; he also held during a portion of his life the position of public analyst for Middlesex, Luton, and for the districts of Holborn and St. Giles in London. He was of a retiring disposition and of even and philosophic temper.

His lucidity and effectiveness as a public speaker were striking, and doubtless his success mainly lay in the fact that he seldom spoke on a subject with which he was not fully acquainted. On his resignation of the chair of chemistry, which he held for such a long period, he was appointed Emeritus Professor of Chemistry and Pharmacy to the Pharmaceutical Society, and a Scholarship was founded in his honour. The further honour of the degree of Ph.D. was, at the request of Liebig, at an earlier date, conferred upon him by the University of Giessen.

C. MEYNOTT TIDY.

Charles Meynott Tidy, was for many years the official analyst to the Home Office, and also Professor of Chemistry at the London Hospital. His chief work was in connection with legal medicine. His "Handbook of Forensic Medicine and Toxicology," which was produced by the joint authorship of himself and Dr. Woodman, is one of his best known works; he also spent a great deal of time and labour in connection with the investigation of the water supply of London, and was a striking instance of what can be accomplished by untiring work and inherent ability, apart from the advantages of birth or exceptional educational facilities.

GEORGE DIXON LONGSTAFF.

Ætat 94.

Dr. George Dixon Longstaff was born at Bishop Wearmouth, County Durham, in 1799. He graduated in the year 1828 M.D. at Edinburgh University, where he was for some time assistant to Dr. Hope, Professor of Chemistry. In that capacity he is believed to have been the first teacher of practical chemistry to medical students in this country.

In 1833 he married the eldest daughter of Henry Blundell, J.P., of Hull. After his marriage he practised as a physician in Hull.

Dr. Longstaff then went to America to apply his scientific knowledge to gold mining in North Carolina. On his return he entered into business in association with his father-in-law as a manufacturer of oils, colours, and varnish, and was for many years chairman of the firm of Blundell, Spence, and Co., Limited, and a director of that company till his death.

While connected with chemical industries, he was in conjunction with Dr. Dalston of Edinburgh, one of the first to carry on in this country the distillation of coal tar. The "tar spirits" were supplied to Mr. Makintosh of Glasgow, and used for water-proofing purposes, while the residue was burnt to form lamp black.

It will not, perhaps, be remembered by many that it was Dr. Longstaff who proposed the vote of thanks to the first president of the Society of Chemical Industry for his address at the inauguration of that Society.

Dr. Longstaff was one of the pioneers of chemical industry, for when speaking on the occasion just referred to, in 1881, he was able to speak with a fifty year's experience of manufacturing chemistry.

He also did a good deal of philanthropic work in connection with the establishment of Mechanics' Institutes, at which he was a frequent lecturer, and by a gift of £1,000 founded the Longstaff Medal, given by the Chemical Society to encourage research work. He was also chairman of the Free Public Library Commissioners, and in 1887 presented a reading-room to the Wandsworth Library. In him was seen, and now has passed away, an honourable type of the old school, and, as such, his memory will be revered by those who came in contact with him in the chemical world.

EUGENE H. COWLES.

Ætat 38.

Mr. Eugene H. Cowles, who died at El Pasco Texas, on April 21st, has attained a world-wide recognition by the scientific world for his inventions in connection with the manufacture of aluminium. These inventions, in the origination and development of which he was assisted by his brother, Albert H. Cowles, involved in principle, the application of the heating action of the electric current for the reduction of aluminum and other metals, and are too well known to need extended reference. It will suffice to allude to the fact that the result

of the Cowles' inventions was a revolution in the aluminium industry as profound as that caused by the earlier work of Deville. The process enables the inventors to produce the alloys of aluminium more cheaply than had hitherto been possible, and consequently a large demand for these products was created. To carry out their process effectively, the Messrs. Cowles had to do a large amount of work, in connection with the design of dynamos of large power, the control of currents of hitherto unprecedented magnitude, the manufacture of carbon electrodes of great size, and to work out, in the face of many difficulties and discouragements, details of the operations that now seem comparatively easy. For all this pioneer work and for the successful introduction of their process in America and in Europe, the brothers Cowles deserve the highest praise.

Shortly after the public announcement of the Cowles process, the Franklin Institute, recognising the merits of the invention, invited the inventors to read a paper on their process. The proposal was acceded to by the late E. H. Cowles, and in the beginning of the year 1886 he read a paper on "The Production of Aluminium and its alloys in the Electric Furnace" before that institution.

The success which crowned the efforts of the inventors to secure the general adoption of their process sufficiently demonstrates that their faith in its commercial and technical value was neither misplaced nor exaggerated.

The untimely death of the deceased before he had reached the measure of years when those better equipped with physical endowments are in the prime of their powers for usefulness, is a loss which all will deplore with regret.

DR. WERNER-VON-SIEMENS.

Ætat 76.

While referring to the loss to the electrical world of a man like Cowles, it would be an oversight not to briefly notify another great loss in the above-named inventor.

With him has passed away another member of the illustrious Siemens family. He was born at Lenthe, in Hanover, in 1816, and died at Berlin.

After being educated at Lübeck Gymnasium, he went through his military service, but while holding his appointment in the army he applied himself with great zeal to the study of practical chemistry and physical sciences, and had an opportunity of attending the lectures of Ohm, Erdmann, and Magnus. He began his own scientific investigations in Magdeburg in 1839, where he was serving as an officer, ultimately becoming the originator of a great number of patents and inventions of importance to the electrical industry and science.

ALFRED FRYER,

Ætat 63.

Mr. Alfred Fryer was the third son of Simeon Fryer, surgeon, of Rastrick, near Huddersfield, and at an early age showed signs of considerable inventive genius. For several years he was a member of the firm of Fryer, Benson, and Foster, sugar refiners, Manchester. In 1865 he perfected the "concretor," an invention by which he conferred a great boon on colonial industries, and effected a vast saving in the carriage of sugar to Europe. By its agency the juice of the cane became as hard and solid as shale, and all waste and loss on shipboard was entirely obviated; in the space of a few minutes the whole of the saccharine matter of the cane, without any change in its nature, could be brought into a state ready for transmission to the refiners.

He was a valued member of the Manchester Literary and Philosophical Society, before which Society he read a number of interesting and important papers.

Until he retired from business Mr. Fryer was a partner in the engineering firm of Messrs. Manlove, Alliott, and Fryer, of Nottingham, and for some years past was a vice-president of the Jarvis-Conklyn Mortgage Trust Company, director of the Land's Trust Company, and senior partner of the firm of Fryer and Co., engineers, Rouen, France.

The question of the treatment of Town refuse brought Mr. Fryer's name prominently before the public, and his "destructor" is in use in many towns throughout the country.

THE MANCHESTER MUNICIPAL TECHNICAL SCHOOL.

THE old technical school in Manchester has long been known for the good work it does and has done, but it has proved to be inadequate to cope with the increasing demand for technical education in the district. It was, therefore, a short while since taken over by the Corporation, who are about to build a new school on the site formerly occupied by the works of Sir J. Whitworth.

It will be the aim of the authorities of the school to provide a practical scientific training of the highest kind in the chief industries of the district, so as to make it unnecessary for our youths to take advantage of foreign technical schools, leaving to the school board and other institutions the duty of providing for the subjects of a general education. The numerous technical schools which are springing up so rapidly in the smaller towns in south-east Lancashire will, it is to be hoped, create a liberal supply of students, able to take advantage of the splendid opportunities the new Municipal Technical School will offer for advanced instruction in the science and practice of its commerce and industries.

rooms, laboratories, workshops, library, administrative and other offices, students' and lecturers' rooms, etc., all lighted from the face of the building with wide continuous corridors all round each floor, from the internal area, thus giving convenient access to the rooms, each department being kept as far as possible distinct and self-contained. The estimated cost will be about £125,000.

The central space of the building between the large internal areas, and lit from them, is occupied by a block containing, on the ground floor, the main entrance hall, 8ft. by 50ft., which will be utilised as an industrial museum at all times accessible, and through which the main double staircase, extending to the top of the building, is reached; on the first floor is a public lecture hall, 30ft. high, of similar area, to be devoted especially to brief courses of lectures by recognised authorities and specialists on the technology of the commerce and manufacturers of the city and district, and to other lectures calculated to educate the public taste; above which, on the third floor; there will be placed a chemical laboratory for 80 students, the plans of which we recently had the pleasure of inspecting, and which indicate that the interests of chemical students have been well looked after.



Well fitted technical schools, equipped with competent teachers, are now an absolute necessity in this country, as we can no longer hope to compete successfully in manufacture with foreign countries, unless we afford the rising generation the means for obtaining as good a technical education, as the young artisans of France, Germany, and Belgium enjoy.

The proposed new technical school at Manchester promises to be an ideal school, and people who fancy that a few thousand pounds expended by County Councils will enable us to speedily regain the ground we have lost, and place ourselves on a level with, and perhaps in advance of our foreign competitors in the matter of technical education, will we trust appreciate the futility of such fancies when they look upon the illustration which we reproduce, and gather perhaps for the first time some idea of what the cost of erecting such an institution will amount to when completed and fitted up with the necessary apparatus.

The building comprises six floors, none of the rooms being less than 15ft. of clear internal height, and averaging 25ft. to 31ft. in depth. The general scheme embraces class, lecture, drawing and designing

The basement, which is sunk only 7ft. in the ground and exceedingly well lighted, is devoted to the department requiring heavy machinery and other appliances needful to industrial operations on a considerable scale.

Here are placed the electrical engineering workshops and testing tables, dynamo house, electro chemical, and technical testing laboratories, secondary battery room, rooms for optical, photometric, magneto-metric, and spectroscopic operations, the mechanical engineering workshops and testing laboratory, with its experimental steam engine and large and small testing machines, the spinning and weaving rooms for cotton, silk, and other fibres, bleaching, dyeing, printing, and finishing rooms, plumber's, bricklayers', and mason's workshops, shop for repair and construction of new appliances, wood working machinery.

The remaining storeys will be occupied by laboratories general and special, numerous class, lecture, drawing and designing rooms, a large gymnasium, convenient rooms for the accommodation of scientific societies, and other means for developing the corporate life of the school.

Laboratory Hints and Appliances.

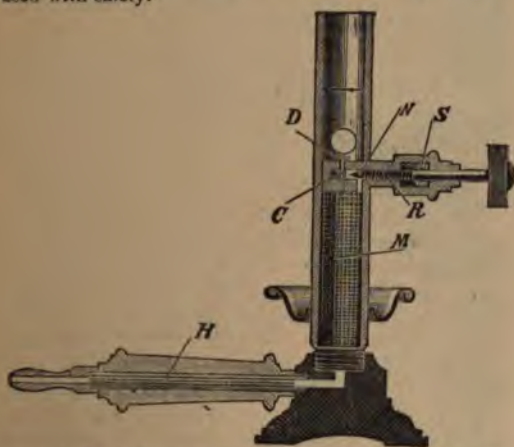
A NEW SPIRIT BUNSEN.

THE Bunsen burner is one of the most indispensable of Laboratory appliances, but it is of course, essential that there is a supply of gas available in order to use the ordinary Bunsen.

Though there are many who are without gas in this country, they form a mere handful compared with the numbers abroad who are hundreds of miles from any gas supply.

It is obvious, therefore, that a Bunsen which could be fed with spirit, that would be portable and also give as much heat as an ordinary Bunsen, would be little short of a god-send to chemists and others abroad, while there are many in this country who would be only too glad to meet with such an accessory.

The Bunsen, which we illustrate below, to all accounts, exactly fills the gap. It is as economical, if not more so, than gas, it gives a flame of from eight to ten and a half inches high, which is sufficiently hot to fuse ordinary brass gauze; it burns steadily, can be used as a blow-lamp or Bunsen at will, is reasonable in price, while last, but not least, it can be used with safety.



Our sectional illustration is exactly one-third the full size of the burner, while its construction is clearly shewn.

The gauze is easily changed, and all parts are readily accessible should any cleaning be necessary, an operation which would occur once in six months at the most.



The general view of the Bunsen and its component parts may be seen in our second illustration. The tripod, can be regulated to carry evaporating dishes of different diameters or for use as a hot plate.

In use, the working of the burner is very simple and it can be quickly lighted. The best method is to proceed as follows:—Join one end of the flexible metallic tubing to the container, and the other end to the

Bunsen burner, fill the container with methylated spirits (about 1 3/4 pints), and hang it up a yard above the bench or table (not higher). The best methylated spirit only, and not "Finish," should be used. Next open the tap underneath the container, give the methylated spirit time to fill the flexible tube, then give the regulating screw (R) of the burner half a turn to the left, and let some spirit overflow into the saucer till same is about one-third filled. Then close the regulating screw, set light to the spirit in saucer. This having burnt out, open the regulating screw and set light to the spirit-vapours escaping at the mouth of the burner. The flame may be regulated by the screw (R) to any size, but it should not be made smaller than 1 1/2 inches.



For those who are situated where benzene is plentiful, another lamp is provided by Messrs. O. Berend, of 61, Fore-street, London, from whom both this lamp and the foregoing may be obtained.

The benzene lamp is much the same in principle as the Bunsen, except that benzene can be used instead of spirit. They are very handy and absolutely safe—a distinctive feature. In order to light these lamps all that is necessary is, to pour a little spirit in the saucer and light up. Keep the regulating screw closed until the spirit is burnt out. Then open screw (half a turn is sufficient), and light the benzene vapours at the top. The wire netting must be kept clean. If the small opening in the burner tube becomes choked, clear it by the needle sent with the lamp; never use a pin, as it is most important *not to enlarge* this opening. This lamp makes an efficient substitute for a Bunsen burner, its approximate heat being 1400° C. It is very compact and well suited for use abroad, as it is self-contained.

A NEW DESICCATOR.

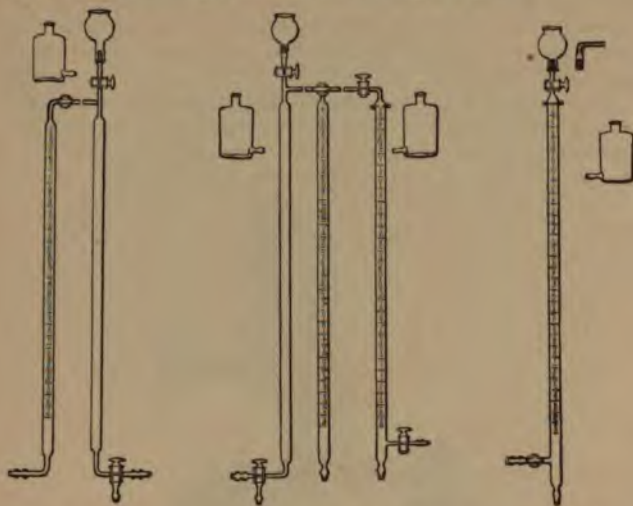
ACCORDING to the experiments made by Professor Walter Hempel, it appears that the old principle of placing the drying substance such as sulphuric acid or calcium chloride at the bottom of a desiccator was an erroneous one. Taking into consideration the fact that moist air is lighter than dry, a new form of desiccator has been devised by Professor Hempel in which the exsiccating substances are placed at the top of the apparatus to which the water laden air rises and the moisture is speedily absorbed.

This new form is illustrated in our sketch, from which the construction of the desiccator will be easily gathered. As the outcome of a number of trials, it is proved that the process of drying is accomplished in one third the time taken by an ordinary desiccator.

In our next illustration we show a convenient form of gas apparatus for technical gas analysis. This apparatus which is devised by Elliot is not very generally known. It commends itself for quick work, the *modus operandi* being simple, and the results obtained accurate enough for the ordinary purposes of technological chemists.



This form of apparatus is recommended by Phillips in his *Engineering Chemistry*, for the analysis of fuel gases, in which work a full description of its advantages, and method of using it is given.



The apparatus itself, and also the new form of desiccator mentioned before, can both be obtained from Messrs. F. Jackson and Co., Half Moon-street, Manchester, who are introducing these two pieces of apparatus.

AN AUTOMATIC BURETTE.

THE accompanying wood-cut illustrates a convenient form of burette which is finding favour on the continent. It consists of an inner tube "b," which reaches to the bottom of the inside of the Woulff's bottle, as shewn. Around this tube, and fused to it just above "a," is an outer tube "c," surmounted by a bulb and cap at the top, fitted with a tap at the bottom, and accurately graduated so that the zero point is exactly on a level with the top of the tube "b," as indicated by the arrow A.

The Woulff's bottle is then charged with any standard solution, the side tube B temporarily closed by the finger and thumb, and the compressor C operated until the solution is raised through "b," and the tube "c" filled to the bulb. The side tube B is then released, when the solution automatically runs itself off to the level of the zero point, and the burette is ready for immediate use. When a number of titrations have to be made consecutively, a contrivance of this kind would prove very useful, while it is also handy, being self-contained, and easily transported. The apparatus can be obtained, made in brown glass for use, with solutions affected by exposure to the light, when such a precaution is deemed advisable. A similar apparatus is used in many laboratories with an ordinary burette however.



THE VICTORIA DUST COLLECTOR.

THE Victoria Dust Collectors are capable of not only collecting the finest and most voluminous dust, but also of extracting combustible soot from smoke. They are built in various forms and sizes, and possess the further advantage of being adaptable to

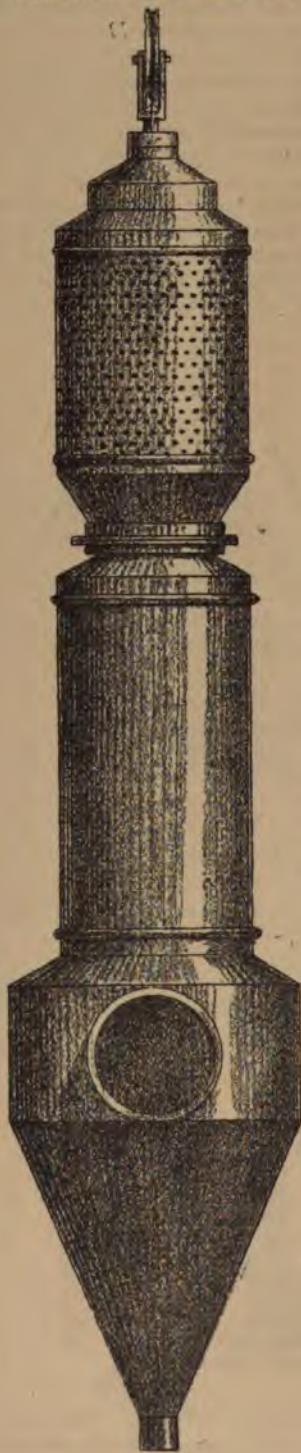
localities, factories, or either in one apparatus several separate ones, in combination of such. They are supplied with or without a mechanism for automatically clearing the filter-layer. The annexed illustration shows a form fitted with a lower chamber, into which the laden air-current is entering the same radius not tangentially with the of the cone-shaped chamber.

The air-current, after entering into this expansion, carries a considerable quantity of dust particles, rises up a vertical column with a gyrating or rotary motion, and on sudden expansion, which takes place between the expansion-cone and the filter-hose, produces a radical separation of dust than the circular or motion.

The air-current coming from that portion of fine dust cannot be extracted without passing through a filter-medium rises a central tube into the hose. The air-current in its original speed through the vent-tube, the diameter of which is the same as that of the tube to the collector, while entering the filters a second more effectual expansion takes place, so that the purified air leaves the collector at 10 to 20 times less than which it enters. The dust filter-hose consists of layers of L. B. Fiechter tissue filtering material, is a specially prepared material. These Dust Collectors are exceedingly simple in construction, being, with the exception of the filter-hose, entirely of iron.

The Automatic Victoria Collector is a combination of a number of collectors, one air-receiving and a cylindrical trunk in connection.

and fitted with mechanism for periodically and automatically locating the collected dust from the filter-hoses, the power required for operating which is merely nominal. In the process of clearing



es, one of the cylinders is alternately cut off from the dust-air-current blown by one or more fans into the air-trunk, mains cut off until the dislocated dust has settled in the aped dust-receptacle.

IMPORTANT TO COLOUR GRINDERS.

cial feature is made of these dust collectors for colour grinders, dust of different colours is produced. By an arrangement of collectors, the collected colour-dust is not mixed, but remains .e., retains its original colour and shade—while but one fan is any variety of colours.



e combined dust-filters and collectors, another form of which w above, and for which Mr. E. Fiechter, of 69, Hartington-road, ool, is the sole agent in this country, are specially suitable for ng the dust from grinding-stones, roller mills, and any kind of g machinery; also for mixing and separating machines used in nufacture of flour and chemicals. They can likewise be used to age in connection with automatic weighing and packing es, in which case aspirating-deflectors are supplied with the or,

MASON'S LEVER STONE BREAKER.

achine for stone breaking and kindred purposes which can be l at the top of a building is a useful one, and this advantage is d by the makers for the above mentioned machine.

ddition to this there are several other points which are worth g. This stone cracker, which works on the lever principle, is ed solely by toggles, so that the breaking of teeth in gearing is d, and friction greatly reduced, while the wearing parts are d and the dust does not get into the bearings.

machine has two movements, regulated for hard or soft stone by o grooves shown in the lever in the accompanying illustration.



ther important feature lies in the fact that there are no links or o get out of order, while the driving wheels are at the bottom of chinery, imparting steadiness to the whole.

To break the frame of the machine or the eccentric shaft through a piece of iron getting between the jaws, is virtually an impossibility. The only damage which might be done in such a case, would be to bend the shaft which carries the lever, operated by the toggle fastened on the fly-wheel shaft. Should this happen the shaft can be easily replaced for about eighteen pence. Owing to the absence of working parts liable to become loose the machine works much quieter than a good many others.

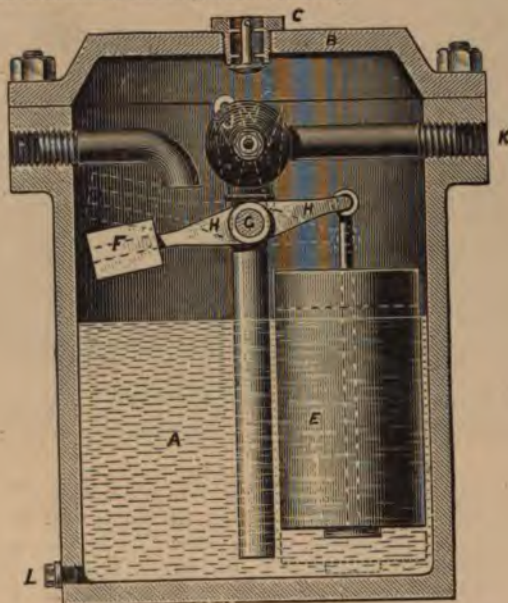
These breakers are made in various sizes, mounted on wheels with horse shafts attached if desired; while the frames are made of wrought iron or steel at the option of the purchaser, without any additional charge.

As an indication of what these machines are capable of doing in the way of output, we may add that one taking stones six inches by ten, will turn out over two tons of stone, broken to the size of one inch, per hour, while a machine taking stones fifteen inches by nine, produces five tons per hour reduced to the size of one inch.

THE "MANCHESTER" STEAM TRAP.

ONE of the most important features about a steam trap is that it should be simple in construction. Extreme simplicity does not always, however, result in satisfactory working. The object of Messrs. Norris and Sons has been to combine the two, and judging from the favour which their "Manchester" Steam Trap is finding, they seem to have been successful.

The working of the trap will be readily understood from the following description and the accompanying illustration. It consists of Box A covered by the lid B in the top of which is an Automatic Air Valve C. The inlet D is coupled to the pipe or apparatus to be drained, and the water of condensation entering the box causes the tile-float E to rise, it being counterbalanced by the weight F. The float and weight are mounted upon a stud G by means of the lever H which lever works the cock J and the water is ejected at the outlet K. The plug L is removed to facilitate cleaning when necessary.



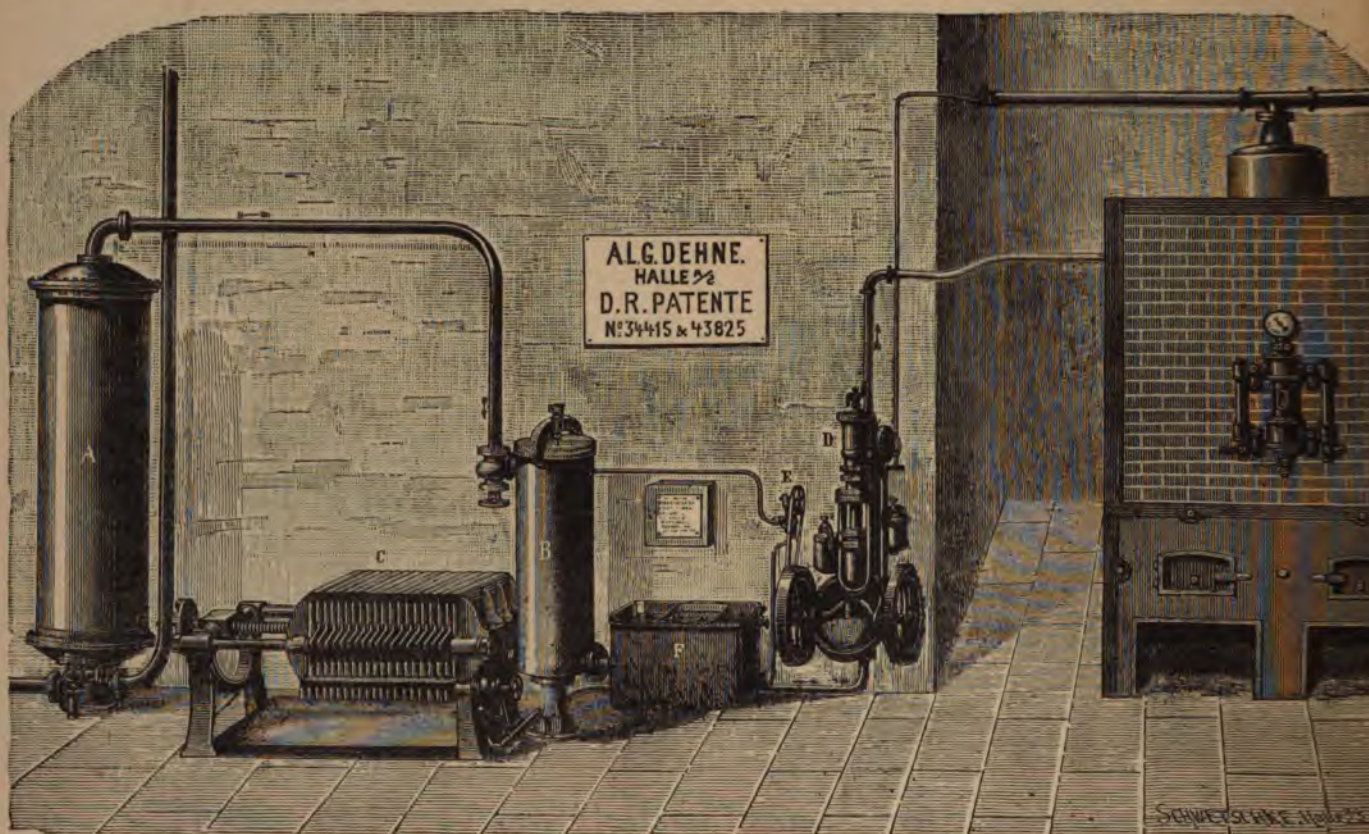
Among the advantages which this trap possesses are the following:— The cock has a full way through, and is made with a taper of 60° so as to give a long bearing surface, and thus ensure free working, an important essential. The float is solid, and cannot, therefore, become water-logged through a leaky joint, or collapse under pressure. It is thoroughly reliable when employed as a "lifting trap," working equally well under a pressure of one, or one hundred and sixty pounds to the square inch, while the dirt trouble is minimised. Our cut shows the cock J open, the position of the parts when closed being indicated by the dotted lines.

THE PURIFICATION OF BOILER WATER.

THE number of methods which exist for the treatment of boiler water to prevent the scaling of the boiler are legion. Among the many, however, there are some which precipitate the incrusting materials in the water inside the boiler. Such methods are now generally accepted to be erroneous.

The scientific process of purifying the feed water of a boiler is one which embodies the removal of the incrusting compounds dissolved in the water by the aid of chemicals, heat, and subsidence, so that the boiler is fed with a clear water, heated to about 80°C , which does not contain any excess of precipitants likely to corrode the boiler plates or fittings. These are the principles on which the Dehne process is based. Most other precipitating mediums applied in the cold require several hours to produce any effect, and even then the result is insufficient and unsatisfactory. This applies specially to magnesia, which in the latter case is hardly influenced, and causes much sludge to be produced in the boiler.

The *modus operandi* may be easily gathered from the following description:—The water to be purified is passed under suitable pressure into the heater *A*, which can generally be run with exhaust steam. This part of the apparatus furnishes the water at 70°C , to 80°C , into the precipitator *B*, in which the pump *E* mixes the water with the precipitant employed, and thus separates in *B* all salts tending to give boiler crust. A filter press *C*, through which all the water has to pass, retains any precipitated matter or sludge, and in the course of 24 hours a pretty solid cake of this will accumulate. *D* is a water pump which conveys the purified water under pressure into the steam boiler, or else pumps it into an open tank from which other pumping apparatus is fed. The pump *E* is driven by a pulley off the water pump, and with each stroke of the latter takes a definite and constant measured quantity of chemical solution from the mixing box *F*, according to the nature of the water operated on, and passes the solution into the precipitator *B*. Thus the whole process is automatic, and conducted in a closed apparatus, which is regulated entirely by the water pump, the mixing only taking place when the pump is running. Also the amount of water treated and the quantity of chemical solution added can be



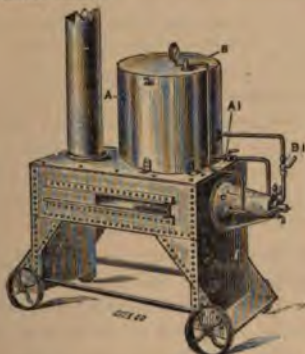
The precipitating agents used are a mixture of carbonate and caustic soda. In processes using both lime and carbonate of soda the former has to follow the latter in order to avoid mutual decomposition. Where mining waters are in question, it is not rare to find a considerable action in the boilers, even when the water has no acid reaction. The cause is obviously the presence of the chlorides of calcium and magnesium. These compounds are decomposed by heat evolving free hydrochloric acid. Treatment with lime would do such waters no good, and they must in every case be purified by soda. A striking advantage of the Dehne process, which is represented in the United Kingdom by Mr. C. Harzer, Billiter-street, E.C., lies in the feasibility of entirely avoiding rusting with such waters. The illustration which we give shows a complete plant using the Dehne system. Some five hundred of these plants are now in active operation, both here and on the Continent, where they are giving thorough satisfaction, the motto of the firm being no cure no pay.

accurately regulated at will. No waste of soda, &c., can take place and all functions are independent of any attendant. The fireman who is necessary at the steam boiler empties the filter-press daily in a few minutes, and once a week fills the mixer with weighed quantities of caustic and carbonate of soda. The whole apparatus is small, and required can be divided and located in different places. In the filter press we have a perfect, simple, and cheaply run apparatus of great capacity for removing solid matter from any fluid. An investigation has been made into the cost of working a plant operating in Dehne Maschinenfabrik for one year. The steam plant consists of two Root water-tube boilers, with a total heating surface of 395 square metres which are run alternately. The feed water comes from the mains of the town of Halle (Saale), and contains about 31.5 grains per gallon of compounds capable of forming boiler crust. These experiments showed a saving which was equal to about £420. and doubly covered the cost of the purifying plant in one year.

A PORTABLE OIL FURNACE.

One of the chief advantages of heating by means of crude oil or petroleum is that the articles heated in the furnace are not subjected to the action of the sulphurous fumes given off in the combustion of coal or coke.

In furnaces used for heating rivets and springs, this is an important advantage, and the furnace which we illustrate below has been specially designed for this purpose by the Rose's Patents Company, Limited. This furnace is only intended for small work, but an enlarged version, specially adapted to the welding of tubes, is also made by the same firm. The chief features about this furnace are that it is portable, easily started, and produces a great heat in a short time, being useful especially in cases where intermittent smelting has to be carried on. The furnace itself consists of an iron casing lined with fire-bricks, the whole being mounted on wheels, to facilitate transport. On the top of the furnace is a tank A, inside which is another tank, containing oil, the inner tank being in the inner tank.



These two tanks are connected with the generator C by the pipes B and D respectively. The generator contains a coil in which steam is generated, under pressure, and, mixing with the oil, injects it into the furnace in the form of a fine spray.

To start the apparatus, a handful of oily cotton-waste is placed in the generator and ignited. This generates steam, and the oil being turned into a fine spray is projected into the furnace, where complete combustion takes place. The conveniences afforded by these furnaces are considerable. The cost of oil is about three farthings a gallon, being cheaper for this purpose than coal, while it possesses a great advantage over the latter fuel on account of greater cleanliness and absence of smoke. For brass casting, bridge building, and metal refining, this furnace is likely to be very useful; while for the purposes of experiment on a fairly small scale in the laboratory, it should be very handy for heating liquids, calcining, and similar operations.

THE 1893 PORION.

In these days, when our local authorities, both ordinary and extraordinary seem straining every nerve to prohibit river pollution, it is not out of place to call our readers' attention to a method for the evaporation of waste liquids, that has not only stood the test of time, but has served to place many thousands of pounds in the pockets of the proprietors.

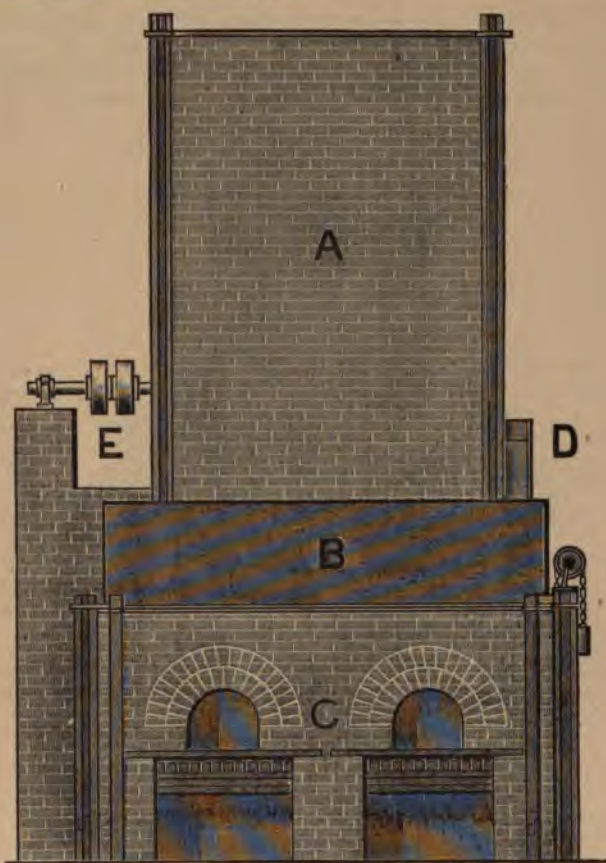
The Porion evaporator was first introduced into this country in the year 1876, and since that time no less than 14 plants have been erected by Messrs. Davis Bros., for England and Scotland alone, and three plants have been designed for Indian mills.

The Porion evaporator is eminently suited for dealing with the waste liquors, straw, or wood liquors prepared with soda in paper mills, and it may be interesting to note that over 200,000 gallons per day of the most noxious liquor that formerly went untreated into the water-courses of this country, are now by this means made an important source of revenue to the various works wherein the Porion is established.

The Porion evaporator is a very simple arrangement, as may be seen from the accompanying illustration. A is the Porion chamber

built of suitable brickwork, and communicates with the furnaces C by means of ordinary flues, the vapours and gases coming from the furnace beds first passing through a "combustion chamber" in order that the disagreeable smell of the partly burned organic matter may be completely destroyed.

The waste liquor to be evaporated is fed into the evaporating chamber A, from a tank at a higher level. Generally this liquor is 8°Tw. when taken at a temperature of 100°F., but very often it is below this. After passing through the evaporating chamber A, the liquor leaves by the overflow door and shuts D at about 50°Tw. and 160°F. where it is stored in the pan B, placed over the furnaces until required to charge the beds. The thickened liquor from the pan B is run on to the furnace beds and calcined, the waste heat passing through the Porion chamber and thickening the liquor as already described. The evaporation is effected by throwing up the liquid in the chamber into a fine spray. This is accomplished by the rapid rotation of the shaft E upon which are fixed peculiarly shaped fanner blades, so constructed as to be driven with the least possible power.



The Porion is at present working in the mills of the Messrs. Cowan, both at Musselburgh, and Penicuik; Messrs. Tod of Lasswade; Messrs. Richardson of Jarrow; Messrs. Fisher of Tamworth; The Guard Bridge Paper Co.; Messrs. Spicer of Godalming; The North Wales Paper Co.; Mr. Gillespie of Cone Mills; Messrs. Thos. Tait and Sons of Inverurie; The Rishton Paper Mills, near Blackburn; Messrs. Peebles and Son, Church, near Accrington; The Bengal Paper Mills Co.; The Titaghur Paper Co.; and The Imperial Paper Mills of Calcutta.

Besides the foregoing list, there are at least one hundred "Porions" working on the Continent, so that this system may well claim to be, "International."

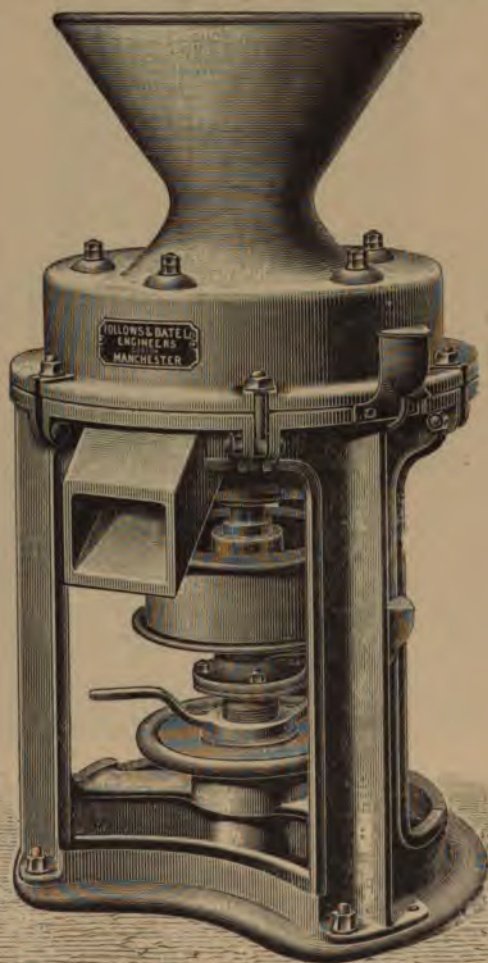
During the past year one extremely large Porion has been designed to evaporate the spent ammonia liquor at a sulphate of ammonia works. This installation has to deal with 60,000 gallons of spent water daily, which the riparian owners will not allow to enter their fishing stream.

Bleachers and wool-scourers will find the Porion a useful apparatus for dealing with their waste liquids, which must sooner or later be taken out of the rivers and streams; river pollution will not be allowed to go on on the old lines, and when it can be shown that there is a large profit in dealing with the waste polluting material, the authorities are perfectly justified in their endeavours to bring about a better order of things.

During the past year, Messrs. Davis Bros. have been summing up their experience of the working of the various installations during the previous sixteen years, and the result is, a new set of designs which they have styled "The 1893 Porion," to evaporate from 6,000 to 26,000 gallons of liquor per 24 hours. All improvements which experience has shown desirable have been adopted, and the details of the ironwork have been so arranged that breakages or renewals can be readily accomplished without loss of time.

A HORIZONTAL DISINTEGRATOR.

THE illustration given below represents a new form of Disintegrator recently introduced by Messrs. Follows and Bate. Its construction may be briefly described as follows:—To the vertical spindle on the machine a revolving disc is attached, the spindle being driven by



a belt pulley at a speed of from 500 to 700 revolutions per minute. The hopper to which the stationary grinding disc is attached is carried by the frame of the machine; while the revolving disc, by a new and special adjustment on the footstep bearing of the vertical spindle, is brought in contact with the stationary grinding disc.

This adjustment can be made with the greatest ease when the machine is at work, and by this means the machine can be adjusted to grind materials to any degree of fineness.

Materials to be reduced, when put into the hopper, are caught at once by a breaker and thrown into the butt of the discs or rings. The teeth on these rings are largest where the material enters, so the process of reducing is gradual, and the greatest strength obtained where most grinding is required. After passing through these rings the finished material is discharged through the delivery spout.

Many of these machines are now at work, and all of them are giving the greatest satisfaction.

Trade Notes.

A NEW FIRE BRICK.—Messrs. A. Haacke and Co., Homerton, London, have, we learn, been engaged upon the production of a new fire brick, which they call the "Kieselghur Fire Brick." These bricks claim to possess great non-conducting power, and to withstand the action of fire to a greater degree than most fire bricks. They are specially suited for setting retorts and stills in chemical works and gasworks, &c. At present they are not very widely known, as they have only just been placed before the public; but wherever they have been tried they have given perfect satisfaction, and in some cases large repeat orders have been made.

THE ALUMINIUM COMPANY LIMITED.—This firm is still experiencing a good enquiry for its new bleaching compound, Sodium Peroxide, which contains 19.5% of available oxygen as compared with 1.5% in ordinary Hydrogen Per-oxide, and 7% in Barium Per-oxide. Being in the form of a powder, its transportation is easily effected. It is stable, and so keeps well. It is soluble in water, and a bath for bleaching purposes is speedily prepared. It does not injure the texture of fabrics, and ought to be found efficacious for bleaching sponges, soap, &c. There is also, we should think, an opening for its application to the purposes of the toilet, for cleansing and beautifying the hands, &c.; but we are not aware of its having been used in this direction up to now. Samples of this compound can be seen at the office of this *Journal*.

MESSRS. FUERST BROS. have recently introduced a new gum solution, prepared from insoluble gum by a secret process. The gum is made in four qualities, three testing 16° B and one 12° B. These gums, as far as our experience has gone, have given every satisfaction. One quality in particular is intended specially for calico printers, who have always experienced a difficulty in dissolving their gum completely. This gum can be used at once, without any special preparation. It keeps in good condition, not going sour. The gum is also made in a dry state, and has simply to be dissolved in water, from 3 to 4½ lbs. to a gallon of water, giving a useful gum solution. Two new pine-oil perfumes have also been introduced by this firm, under the name of *Olium Pini Abietis* and *Olium Pini Pulmilionis*. These perfumes are of a fine quality. Those of our readers who may be interested by the foregoing are invited to call at the office of the *Journal*, where samples may be seen.

CHEMICAL LABELS.—We notice that Messrs. Phillip Harris and Co. Limited, of 144, Edmund-street, Birmingham, have recently brought out two new sets of labels for the chemical laboratory. One of these sets, which are in a convenient book-form, is specially intended for the use of laboratories under the Science and Art Department, and contains six labels for each of the reagents required at the working benches, and two labels for each of the general reagents, with a number of blank labels for special solutions. The other book contains general labels for solid and liquid chemicals, and contains some special forms of labels, such as labels for standard, decinormal, alcoholic, and other solutions; also labels with simply per cent., specific gravity, anhydrous, &c., printed on, leaving room for the addition of particulars at will. Altogether they form a very handy set of labels, being somewhat out of the usual run.

GERANIUM OIL FROM MALAGA—A new industry has sprung up in Malaga which seeks a market in the United States, that is, the distillation of oils and essences from flowers. A large factory has been built for this purpose, and acres of geraniums and other flowers are being raised. The first shipment of the oil of geranium was made recently.

IRON-CHROME—This compound, which is virtually a fluoride of chromium, is being introduced into this country by Messrs. Greef and Co., 29, Mincing Lane, E.C. It is used as a mordant by dyers and printers. It dissolves in either hot or cold water. By the use of this compound over chroming is avoided. It is perfectly free from iron (a special feature), and contains a guaranteed percentage, namely 42 per cent of chromium oxide.

BREACH OF THE ALKALI ACT—At the Wolverhampton County Court on Monday last, an action was brought by the Local Government, represented by Chief-inspector Fletcher, against Messrs. Burn and Co., chemical manure manufacturers, Wednesfield, to recover penalties for alleged infringement on two occasions of the Works Regulation Act, in permitting excessive quantities of sulphuric acid to pollute the atmosphere in the neighbourhood of the works. The penalties were for the first offence £100., second £50., and the Local Government Board were willing for the penalties to be reduced to £10. Judge Griffiths said he could not accept the suggestion. He considered the offence a very serious one, and inflicted a fine of £50. and costs.

NEW COLOUR—At a recent meeting of the chemical section of the Franklin Institute, a note on "a Lilac colour from Extract of chestnut" was read by Mr. Palmer. While experimenting on commercial extract of chestnut wood, with the idea of making galloflavine, an unexpected result was obtained. The extract was somewhat fermented, and the tannin having been changed into gallic acid, and the idea of converting this gallic acid into galloflavine by the usual method. A solution of the 51° extract was made strongly alkaline with potash, and subjected to the action of a stream of air for about ten hours. The temperature, meantime, was kept below 50° F. At the end of the process of oxidation, the potash was neutralized with acetic acid. The colour so obtained was tested for galloflavine by working therein cotton wool yarns with the addition of potash alum. While no yellow colour was obtained, a clear, bright lilac was developed on both the cotton and the vegetable fibre. The body giving this colour has not yet been separated from the oxidized extract.

NOTICES.

LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

on usual trade terms.

FOREIGN REMITTANCES.

owing to the inconvenience created by the various ways in which foreign remittances are effected, we respectfully beg to inform our subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, in order to avoid, owing to post-office formalities, much delay in tracing and forwarding foreign remittances is inevitably entailed in this country.

Correspondence.

** * We do not hold ourselves responsible for the opinions expressed by our correspondents.*

ANSWERS TO CORRESPONDENTS.

- F. P. C. (Alsace).—The matter has received our attention, but we are not responsible for the delay.
B. BROS.—We trust you will find the information serviceable.
J. W. L.—We will do as you request, and hope you will give it a trial.
S. P. (Galicia).—We have done so. We shall be glad to hear from you at any future time.
J. B.—Thanks for information duly to hand.
E. S.—We think you will find the names we have given you about the best for your purpose.
W. AND P. (Anvers).—Thanks for notification. The matter has been attended to.
E. H. B. (Germany).—It has been safely received, for which please accept our thanks.
B. AND C. (Paris).—The matter is now satisfactorily settled. You will be advised in the usual way.
R. S.—We shall be pleased to receive same at any time.
A. W. (Florida).—We have made the alteration, and should like to hear that you continue to receive the same safely.

Market Reports.

REPORT ON MANURE MATERIAL.

The greater activity in the market referred to in our last report continues, and in the aggregate considerable business has been done during the week.

There are still sellers of 75/80% Florida phosphate rock at 8d. per unit, in cargoes c.i.f. to United Kingdom, but buyers' idea not at present being above 7½d., we do not hear of any important business. For hot air-dried South Carolina rock, 6½d. per unit is generally asked, and it is doubtful whether ¼d. less would be business.

A large mixed cargo of River Plate bones and ash has been sold at a round price, for the Continent, equal to £4. 2s. 6d. for the bones and £2. 17s. 6d. on 70% for the ash. The value therefore of bone cargoes cannot be quoted under £4. 2s. 6d. per ton, in any position. For crushed Kurachee bones, £4. is again the price, and business has been done at this figure. The market for East Indian bone meal is dearer on spot, owing to default in delivery on arrival contracts. At the close there is nothing of really good quality offering under £4. 7s. 6d. ex store. For shipment £4. 5s. would have to be asked.

Nitrate of soda is dearer in all positions. On spot there is nothing now offering under 9s. 1½d., and 9s. 3d. would have to be paid for fine quality. Due cargoes are worth 9s. 1½d. to 9s. 2½d. November shipments about 9s. 4½d.; December 9s. 3d., and first half January about 9s.

The demand for dried blood continues, and sales continue to be made at 10s. 6d. per unit, in bags, gross weights, delivered f.o.b. Liverpool. In other material there is nothing special to note.

THE METAL MARKETS.

LONDON, TUESDAY.—Pig iron quiet. Scotch warrants closed at 43s. 5d. cash. Middlesbrough 35s. 9d. cash, and Hematite 46s. 1½d. cash. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £46. to £46. 7s. 6d. cash, and £46. 8s. 9d. to £46. 16s. 3d., three months. Tin quiet. Straits closed at £92. 5s. to £92. 15s. cash, and £92. 5s. to £92. 15s. three months. Australian, £92. 10s. cash. English ingots, £95. 10s. Lead firm: Spanish, £9. 15s. English £9. 17s. 6d. Silesian spelter: Ordinary, £18. Quicksilver: First hands, £6. 5s., second hands, £6. 4s. 6d. Copper shares steady; Cape, 1½ to 1¾. Copiapo, 2¼ to 2½. Libiola 3½ to 3¾. Mason and Barry, 2¼ to 2½; Rio Tinto, 15½ to 15¾; Tharsis, 4¼ to 4½; Namaqua, ¾ to ¾; Panulcillo ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Business to-day steady. A good number of transactions, commenced at last week's quarterly meetings, were satisfactorily concluded. The works are fairly active, and an improved trade is anticipated as the quarter proceeds. Marked bars continue at £7. 10s.; merchant bars, £6. to £6. 10.; common bars, £5. 10s.; sheets singles, £6. 15s. to £7.; and doubles, £7. to £7. 5s. Pigs not over brisk. Derbyshires 43. to 45s.; Northampton, 41s. to 42s.; and Lincolns, 45s. 6d. to 47s. Coal firm.

GLASGOW, WEDNESDAY.—Market steady, with good business. Scotch done at 43s. 4d. and 43s. 9d. cash; closing with buyers at 43s. 8d. cash, and 43s. 9d. one month; sellers ask 1d. more. Middlesbrough closes with buyers at 35s. 9d. cash; sellers ask 36s. Hematite closes with buyers at 46s. 1½d. cash; sellers ask 46s. 3d.

TAR AND AMMONIA PRODUCTS.

The tar products market has strengthened considerably during the past few weeks, but it is as yet uncertain what the future will be. The fact is, there are signs that if an abnormal figure is attempted in benzols, a reaction will set in disastrous to the producers on this side of the water. To-day 90's Benzol is wavering between 2s. 3d. and 2s. 3½d., while some say—without affording proof—that they have refused 2s. 4d., and 1s. 10d. is quoted as the value of 50-90's. The tar product syndicate, with its headquarters in London, is now ramifying the provinces, and all tar products are under its influence. It is, therefore, necessary to take all gratuitous information respecting price with the proverbial grain of salt.

The sulphate of ammonia market is increasing in firmness, and though £10. 5s. was a few days ago an extreme quotation, it is hardly correct to say so now. Beckton is firm, and this is the situation at all ports, at which the foregoing price is easily obtainable, and a rise to £10. 6s. 3d., and even more is not at all improbable. Makers hold the key of the position just now, and there is nothing like enough offering to cover the requirements of the present month.

MISCELLANEOUS CHEMICAL MARKET.

The market continues steady in all the main products of the alkali trade. The demand for caustic soda is still below the average, but the reduction of prices is bound to bring about a larger consumption. The current prices are as last reported, viz.:—f.o.b., Tyne, 77%, £11. 5s.; f.o.b., Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., ten ton lots and upwards. For soda ash the demand is still good for Leblanc makes in all qualities at prices varying from 1¼d. to 1¾d., f.o.b., for ordinary qualities, and 1½d. per degree for refined qualities. For ammonia alkali 1½ per degree, bags, is nearest spot value on rails at makers' works. Bleaching powder continues in fair request, and the price is steadily maintained at £7. 10s. nett for spot deliveries, with 5s. per ton concession for contracts over the year. Chlorate of potash nominally 8½d., and chlorate of soda, 9d. per lb. Recovered sulphur is selling at lower prices, from £4. 5s. to £4. 7s. 6d. per ton in bulk at makers' works. Sulphate of copper, £16. per ton, with only small demand. Acetates of lime, rather easier—brown, £6. per ton, and grey at £10. to £10. 5s. White sugar of lead, firm at £25. 10s., c.i.f. Acetate of soda unchanged. Carbolic crystals are higher in price and there is good enquiry—39/40° quality, 7d. per lb. There is an improvement in value of nitrate of soda, and a firm market in the same for forward deliveries. White powdered arsenic has an upward tendency, £12. 10s. to £12. 15s. being current quotations. Yellow prussiate of potash, 9¾d. to 10d. per lb. Oxalic acid, 3d. Sulphocyanide of barium, 5d. Ammonium, 6¾d. The demand for miscellaneous chemicals used in the textile trade is still reported unsatisfactory.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—The firmness of palm oil continues, and advanced figures have been quoted, £25. 15s. now being asked for Lagos, sales of which have been made at £25. 5s. transit. Bonny has also been done at £24. 15s. to £25 transit. Olive continues to experience a fairly good consumptive demand at prices ranging from £35. 10s. to £42. a c quality. Linseed: The firmness of holders has led to a hardening in prices, and 20s. to 20s. 6d. per cwt. is now lowest quotation for Liverpool makes in export casks. In cottonseed, the position of Liverpool refined has been well maintained; prices have a tendency to advance and quotations now range from 20s. to 20s. 9d. per cwt. Castor oil is steady, good seconds Calcutta being worth 2½d. to 2¾d. per lb., while first pressure French continues unaltered at 2½d. to 2¾d. per lb. Tallow has become much firmer in price, and North American is now quoted 30s. per cwt. and South American, 33s. per cwt. Resin, common, is steady at 3s. 10½d. per cwt., with a fair business passing. Quotations for medium are 4s. 6d. to 7s. 6d., and for fine, 8s. to 11s. 6d. per cwt. The demand for spirits of turpentine is good and in sympathy with the increased demand prices have advanced, 24s. per cwt. being present value. Petroleum has been selling fairly well, with American at 5¼d. to 6¼d. a/c quality, and Russian refined, 4½d. to 4¾d. per gallon.

COLOURS.—Unaltered and steady. Ochres: Oxtordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.;

Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

The market has ruled steady. Manganese: prices firm; with every prospect of an advance. Borate, 7½d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump): Fair demand; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): continues good for time of year, and prices firm; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals continue small; demand good, both for prompt and forward. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone: Good demand, and prices are firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal is much sought after, and prices are unaltered. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Something like a certain improving movement has taken place in sulphate of ammonia at last, and the prompt quotation to-day is £10. 3s. 9d. to £10. 5s., some sellers holding pretty firmly for the higher of these. There is no buying worth speaking of for forward delivery as yet, but sellers' views as to this are also to the stiffening side, and £10. 7s. 6d. to £10. 10s. is spoken of. Both sections of the market are inclined to think that the improvement is to stay a time, and probably to increase.

In mineral oils there is one change to note, viz., in the position of low gravity lubricants (865°) which is firmer, and readily commands £3. 10s. per ton. This is the gravity used for the production of oil gas, an illuminant which grows steadily in demand. Deliveries of burning oil are still heavy, but will soon now begin to ease down. Prices remain as before; also those of the solid paraffins, naphtha, and the higher gravities of lubricating oil.

The general market (chemicals) remains quiet, with nothing in any bracing demand except bleaching powder, which is still scarce and easily holds its value. Chlorate of potash is weaker, but in the others there are no changes worth mentioning.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash, £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 74°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 30s.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¼d., less 5% any port; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £10. 3s. 9d. to £10. 5s. f.o.b. Leith; salammmoniac, first and second

white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¾d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5½d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. according to kind, at works, for Scotch buyers (English sales about ½d. lower); ditto (lubricating), 865°, £3. 10s, 885°, £4. 5s. to £5. 15s., and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 9,500 bags beet, and 313 hhds. cane.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue quiet except bleaching powder, which product is in excellent demand at £7. 15s. per ton nett; high strength caustic soda, £11. per ton; soda crystals, nominally £2. 12s. 6d. per ton gross weight; sulphur, £4. 10s. per ton.

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 12s. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5 per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; allicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, in casks, £4. 5s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminat of soda, £33. 15s. per ton net; hydrate of barium, £10. per ton net.

South Durham salt unchanged at 10s. 1d. per ton f.o.b. Tees.

Coals.—Trade is weak generally, and the tendency of prices downwards. Best Northumbrian steam, 8s. 9d. and 9s. per ton; small steam, dull, 3s. 3d. and 3s. 6d. per ton. Gas coals have been freely sold, the demand still being excellent—prices vary much—7s. and 8s. per ton is about the figure; bunker coals, depressed and prices weaker; household coals quiet, best Northumbrian being offered in Newcastle at 14s. per ton; coke, steady at about 15s. per ton.

New Companies.

Devon Hide, Skin, and Manure Co., Limited.—CAPITAL £10,000. in £10. shares. The object of the company is to trade as fellmongers, tanners, manure manufacturers, chemists, and druggists. The subscribers are:—A. S. Rendell, Newton Abbot, land agent; W. Rowell, Teigngrace, farmer; F. J. Crocker, Torquay, butcher; W. Adden, Torquay, butcher; W. Abbot, Torquay, butcher; F. Pack, Paignton, butcher; F. Judd, Newton Abbot, hide merchant.

Horsley and Co., Limited.—CAPITAL £432. in £1 shares. The object of this company is to deal in patent medicines, salts, acids, alkalies, chemicals, perfumes, paints, and varnishes.

T. Stothert and Co., Limited.—CAPITAL £4,000. in £100 shares. This company has been formed with a view to purchasing the business of drysalers, wholesale druggists, etc., carried on formerly by Robert Clayton, of Blackburn.

Webb Bros., Limited.—CAPITAL £3,500. in shares of £5. each. This company has been formed with a view to taking over and carrying on the business of chemical glass manufacturers, hitherto carried on by Webb Bros., of Pendleton and Varley Street, Manchester, and to trade as manufacturers of blown and moulded glass, and glass work of all descriptions.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR LETTERS PATENT.

Apparatus for Moistening Air. A. Shields. 14. Jan. 2nd.
Manufacture of Illuminating Gas from Mineral Oil, etc. J. Laing. 35. Jan. 2nd.
Rendering Cresols Soluble in Water. J. Wetter. 71. Jan. 2nd.
Manufacture of Manganese and Manganese Alloys Free from Carbon. W. H. Greene and W. H. Wall. 82. Jan. 3rd.
Asbestos Soap. W. S. Mackie. 88. Jan. 3rd.
Filtering Material for the Filtration of Sewage Effluent and other Liquids. F. M. Spence and D. D. Spence. 91. Jan. 3rd.
Improvements in the Manufacture of Sulphate and other Salts of Ammonia. F. M. Spence, D. D. Spence, and G. Sisson. 92. Jan. 3rd.
Machinery for Treating Rhea and other Fibres. D. E. Radcliffe. 114. Jan. 3rd.
Storage Batteries. G. W. Harris. 140. Jan. 3rd.
Coal Washing Apparatus. J. Morrison, A. Kesson, D. Campbell, and S. Potts. 164. Jan. 4th.
Improvements in the Detection of Combustible Gas in Air. B. Redwood, F. Clowes, and S. Waters. 187. Jan. 4th.
Yellow and Red Colouring Matter for Dyeing Wool. O. Imray. 188. Jan. 4th.
Improvements in the Manufacture of Portland Cement. A. Patrick. 226. Jan. 5th.
Improvements in Pickling and Scrubbing Iron Plates, etc. W. S. Rawson, and Woodhouse and Rawson United, Limited. 244. Jan. 5th.
Treating Soapy Waters from Wool Washing to Obtain a Lubricant. T. Craig and A. E. Raper. 256. Jan. 5th.
Improvements in Drying Paints, Oxides, and other Matters, by the Aid of Electricity. R. E. B. Crompton and H. J. Dowling. 259. Jan. 5th.
Improvements in the Manufacture of Anthracene. J. Bueb. 280. Jan. 6th.
Apparatus for Humidifying Air. W. Tattersall. 284. Jan. 6th.
Improvements in Apparatus for Obtaining Cyanides. W. Key. 295. Jan. 6th.
Improvements in Coating Metallic Surfaces with Zinc. The London Metallurgical Co., Limited, and Sherard Osborn Cowper-Coles. 327. Jan. 6th.
Improvements in Salt. M. Lommer. 338. Jan. 6th.
Improved Manufacture of Soap. J. Peacock and W. L. Collis. 386. Jan. 7th.
Secondary Batteries. E. Hancock and A. J. Marquand. 391. Jan. 7th.
Manufacture of Artificial Fuel and Apparatus Therefor. T. W. Lees. 392. Jan. 7th.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

F. E. TUCKER, L. N. WAY, and J. E. PARK, under the style of the Caston Alkali Works, Little Paris Street, Lambeth, alkali manufacturers.
G. B. ALLINGTON and S. LORD, under the style of Allington and Lord, Rochdale, paint, colour, and varnish manufacturers.
C. ECKERSALL, W. ECKERSALL, and J. ECKERSALL, under the style of Eckersall and Co., Radcliffe, dyers.
E. MASSEY and T. BIRBEY, under the style of the Lawton and Odd Rode Salt Company, Odd Rode, Cheshire, salt manufacturers.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 7th.

Acetate of Lime—
U. States, 432 pkgs. Johnson & Hooper
Acetic Acid—
Holland, 192 pkgs. Beresford & Co.
14 A. & M. Zimmermann
Ammonia—
Holland, 6 pkgs. Comp. Mar. Belge
Amyl Acetate—
Germany, 3 pkgs. F. Stahlschmidt & Co.

Asbestos—

Italy, £60 J. Pinkhall & Sons
Canada, 448 T. Ronaldson & Co.
N. Russia, 1,000 Beck & Pollitzer
France, 25 McKellar, Carr, & Co.
U. States, 1,600 T. Ronaldson & Co.
Italy, 240 Flageollet & Co.
Holland, 18 Philipps & Graves

Barium Chloride—

Germany, 26 pkgs. Petri Bros.

Barytes—

Germany, 38 cks. Burrell & Co.
" 23 W. Harrison & Co.

Belgium, 44

" 21

" 21

" 21

Caoutchouc—

U. States, 194 c.

France, 8

Uruguay, 32

France, 21

Rangoon, 119

Italy, 13

" 22

Coml. Lightgr. Co.

P. Jantzen

W. Harrison & Co.

Leach & Co.

Williams, Torrey,

& Co., Ltd.

Flageollet & Co.

Prop. Bull. Wf

C. Atkins & Nisbet

L. & I. D. Jt. Co.

J. & J. Roberts

France, 72

Germany, 18

Inbambane, 28

Zanzibar, 4

Belgium, 43

Madagascar, 22

Germany, 46

Castor Oil—

France, 11 brls.

Belgium, 31

France, 15

S. Figgis & Co.

Hale & Son

D. Sassoon & Co.

Prop. Bull. Wf

W. Balchin

D. Taylor & Sons

Wallace Bros.

Beresford & Co.

Fuerst Bros.

J. T. Morton

Chemicals (otherwise undescribed)

Germany, £16	47 pkgs.	L. & I. D. Jt. Co.
"	76	A. & M. Zimmermann
"	28	T. H. Lee
"	5	Phillips & Graves
Holland, 24		J. Owen
U. States, 6		Scotney & Earnshaw

Cream of Tartar—

Belgium, 5	pkgs.	Leach & Co.
France, 2		W. C. Bacon & Co.
Spain, 16		B. & F. Wf. Co., Ltd.
France, 5	12 cks.	"
Holland, 13		E. W. Carling & Co.
Holland, 6		Middleton & Co.
France, 9		Ross & Deering

Dyestuffs—

Holland, 26	pkgs.	Williams, Torrey, & Co., Ltd.
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Annatto

France, 1	pkg.	Hurford & Middleton
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Argols

Italy, 129	pkgs.	Thames Stm. Pkt. Co.
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Spain, 127		J. A. Finzi & Co.
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France, 211		N. S. S. Co., Ltd.
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Cutch

Rangoon, 2,000	pkgs.	H. A. Litchfield & Co.
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"	1,000	Kleinwort, Sons, & Co.
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"	2,000	Leach & Co.
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"	327	Perkins & Homer
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Extracts

France, 50	pkgs.	B. & N. Wf. Co., Ltd.
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U. States, 100		Skilbeck Bros.
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France, 5		Bennett S.S. Co.
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Denmark, 6		Sorensen & Co.
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"	14	F. J. Maybury
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Belgium, 5		Hernu, Peron, & Co.
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Gambler

E. Indies, 30	pkgs.	L. & I. D. Jt. Co.
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"	449	Brinkmann & Co.
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"	79	E. Boustead & Co.
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"	226	Rolls & Son
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Indigo

Holland, 11	chts.	W. Adolph & Co.
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Java, 2		L. & I. D. Jt. Co.
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E. Indies, 84		R. Von Glehn & Sons
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"	26	Benecke, Souchay, & Co.
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France, 5		Hernu, Peron, & Co.
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E. Indies, 6		J. Keymer & Co.
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"	10	F. Huth & Co.
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"	105	L. & I. D. Jt. Co.
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"	94	T. H. Allen & Co.
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"	185	R. Von Glehn & Sons
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Italy, 17		J. Owen
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"	109	Elkan & Co.
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"	107	Darling Bros.
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"	84	Patry & Pasteur
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"	14	E. Bower & Co.
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Holland, 2		J. Barber & Co.
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"	4	L. & I. D. Jt. Co.
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E. Indies, 10		Darling Bros.
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Saffron

Spain, 1	pkg.	B. & F. Wf. Co., Ltd.
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"	2	J. H. Fox & Co.
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"	1	Pickford & Co.
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"	1	P. Brumlen & Son
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Sumac

Italy, 300	pkgs.	Union L. Co., Ltd.
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"	650	J. Kitchin, Ltd.
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"	50	G. S. N. Co.
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"	120	Italo-Brit. S. N. Co.
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"	671	L. & I. D. Jt. Co.
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Tanners' Bark

France, 5	t.	Beresford & Co.
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Natal, 24		A. & W. Nesbitt
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"	6	Brookes & Green
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Valonia

A. Turkey, 10	t.	A. J. Humphrey
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"	25	H. B. Evans
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"	202	A. & W. Nesbitt
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"	37	J. Graves
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"	25	S. Barrow & Bro., Ltd.
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"	30	J. Graves
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Glucose—

U. States, 50	pkgs.	300 c. Page, Son, & East.
"	150	900 c. Pillow, Jones, & Co.
"	400	400 Humphrey & Co.
"	50	303 Williams, Torrey, & Co.
"	475	2,613 Prop. Chmbln.'s Wf.
"	550	805 R.G. Hall & Co.
"	120	660 T. M. Duché & Sons
"	100	540 J. Barber & Co.

"	1,999	2,000 Fellows, Morton, & Co.
"	10	275 Thames S. T. & L. Co., Ltd.
"	30	165 Union L. Co., Ltd.
"	500	3,205 L. Sutro & Co.
"	500	500 L. & I. D. Jt. Co.
"	25	140 L. & N. W. Ry. Co.
France, 1,200	1,200	J. Barber & Co.

Magnesia—

Holland, 5	pkgs.	A. & M. Zimmermann
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Manure—

France, 1	t.	Prps. Hay's Wf.
Sydney, 5		A. G. Anderson
U. States, 7		A. & W. Nesbitt
"	10	J. Sayer
Germany, 50		Perkins & Homer

Methyl Alcohol—

Holland, 8	dms.	W. Pope & Co.
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Belgium, 13		Stein Bros.
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Germany, 14	cks.	Lister & Biggs
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Ochre—

France, 4	cks.	J. L. Lyon & Co.
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"	110	W. Harrison & Co.
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"	16	H. A. Litchfield & Co.
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Holland, 6	cs.	Phillips & Graves
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Paraffin Wax—

U. States, 150	brls.	Mordaunt Bros.
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"	10	Williams, Torrey, & Co., Ltd.
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"	1,779	J. H. Usmar & Co.
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"	330	H. Hill & Sons
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"	78	Prod. Brokers Co.
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Rangoon, 787	cs.	H. Hill & Sons
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U. States, 199		C. Ogleby & Co.
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Phosphoric Acid—

Germany, 5	pkgs.	Phillips & Graves
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Pitch—

France, 10	brls.	J. Greig
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"	40	Poth, Hille, & Co.
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Plumbago—

U. States, 1,600	pkgs.	Beck & Pollitzer
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Germany, 21	cs.	T. H. Lee
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U. States, 510		L. & I. D. Jt. Co.
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Ceylon, 383	brls.	J. Thredder, Sen, & Co.
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"	258	Prop. Sun Wf.
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Germany, 88	cks.	Prop. Scott's Wf.
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Cochin, 160		Marshall & French
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Potassium Chloride—

Germany, 500	pkgs.	Odams Chemical Manure Co.
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Potassium Cyanide—

Holland, 10	pkgs.	Phillips & Graves
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Potassium Sulphate—

France, 300	pkgs.	Weatherley, Mead, & Co.
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"	500	F. W. Berk & Co., Ltd.
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Germany, 24	cks.	L. & I. D. Jt. Co.
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Pyrites—

Spain, 998	t.	Anderson, Anderson, & Co.
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"	1,400	T. S. Whitehead & Co.
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Rosin—

U. States, 4,878	brls.	G. Nutter & Co.
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Saltpetre—

E. Indies, 1,922	bgs.	Ralli Bros.
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Germany, 80	kg.	P. Hecker & Co.
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Sodium Acetate—

Belgium, 8	pkgs.	Leach & Co.
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France, 30		H. Lorenz
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Sodium Nitrate—

Germany, 9	pkgs.	C. Faust & Co.
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Sulphur—

Italy, 6	t.	G. S. N. Co.
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"	50	Blackwood, Bryson, & Co.
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"	3	Italo-Brit. S. N. Co.
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France, 200		W. C. Bacon & Co.
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Italy, 10		Howards & Sons
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"	10	F. C. Devon & Co.
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Tallow—

Germany, 2	cks.	Craven & Co.
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Queensland, 61		Dalgety & Co., Ltd.
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"	126	Anning & Cobb
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N. Zealand, 10		Nelson Bros.
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U. States, 45		R. Tucker & Co.
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Queensland, 86		Horne & Co.
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N. Zealand, 17		Culverwell, Brooks, & Co.
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Sydney, 666		Aust. Meat Co.
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N. Zealand, 92		Brown & Elmslie
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"	11	Hoare, Wilson, & Co.
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Sydney, 77		Anning & Cobb
"	100	J. Greig
"	275	Hoare, Wilson, & Co.
N. Zealand, 25		Low, Sons, & Bedford
"	665	Flack, Chandler, & Co.
"	6	J. Graves
U. States, 14		H. Hehl
Sydney, 50		Leach & Co.
"	200	Dangar, Grant, & Co.
"	150	J. Owen
"	69	N. Z. L. & M. A. Co.
N. Zealand, 11		Deering & Robottom

Tartaric Acid—

France, 20	pkgs.	B. & F. Wf. Co., Ltd.
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Holland, 5		F. C. Devon & Co.
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Turpentine—

N. Russia, 104	brls.	F. S. Chiesman & Co.
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France, 7	pkgs.	Bennett S. S. Co., Ltd.
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Ultramarine—

Belgium, 1	cs.	Leach & Co.
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Holland, 2	cks.	Haefner, Hilpert, & Co.
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Varnish—

U. States, 1	pkg.	Rosenberg, Loewe, & Co.
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"	2	J. Watson & Co.
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"	6	Allan Bros. & Co.
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"	15	Pinchin, Johnson, & Co.
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Belgium, 2		Union L. Co. Ltd.
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Vermillion—

Hong Kong, 40	cs.	B. & N. Whvs. Co., Ltd.
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White Lead—

Germany, 6	brls.	E. Leverkus, Harms, & Co.
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Belgium, 2		Leach & Co.
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Germany, 10	cs.	Grosscurth & Laboldt
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Holland, 36	cks.	Colthurst & Harding
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Belgium, 2		J. L. Lyon & Co.
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France, 10		J. Watt & Sons
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Alkalis—			
Ammonia—	74 pks. Zealand S. S. Co.		
Ammonia—	26 cks. W. & C. L. Ringrose		
Alumina—			
Ammonia—	4 cks.		
Alumina Extract—			
Ammonia—	27 brls. Wilson, Sons & Co., Ltd.		
Ammonia—			
Ammonia—	2 cks. G. Lawson & Sons		
Ammonia—			
Ammonia—	50 bgs. Wilson, Sons & Co., Ltd.		
Ammonia—			
Ammonia—	40 cks. "		
Ammonia—			
Ammonia—	100 bgs. "		
Ammonia—			
Ammonia—	5 cks. G. Lawson & Sons		
Ammonia—			
Ammonia—	50 bgs. Hutchinson & Son		
Ammonia—			
Ammonia—	250 brls.		
Ammonia—			
Ammonia—	15 brls. Wilson, Sons & Co., Ltd.		
Ammonia—			
Ammonia—	82 t. Wilson, Sons & Co., Ltd.		
Ammonia—			
Ammonia—	200 bgs. "		
Ammonia—			
Ammonia—	50 t. "		
Ammonia—			
Ammonia—	3 cks. "		
Ammonia—			
Ammonia—	54 "		
Ammonia—			
Ammonia—	20 cks. Wilson, Sons & Co., Ltd.		
Ammonia—			
Ammonia—	30 pks. "		
Ammonia—			
Ammonia—	50 dms. 43 cks. "		
Ammonia—			
Ammonia—	4 cks. "		

Sodium Phosphate—			
Rotterdam,	8 cks.	Hutchinson & Son	
Talc—			
Genoa,	80 bgs.	Wilson, Sons & Co., Ltd.	
Tallow—			
Antwerp,	125 bgs.		
Turpentine—			
Hamburg,	25 brls.	Wilson, Sons & Co., Ltd.	
Varnish—			
Hamburg,	5 dms.	G. Lawson & Sons	
White Lead—			
Rotterdam,	9 cks.	Hutchinson & Son	
Bremen,	13	Sissons Bros & Co.	
"	3	Johnson Bros.	
"	16	H. Chambers	
Zinc Oxide—			
Rotterdam,	25 cks.	Hutchinson & Son	

GLASGOW.

Week ending January 12th.

Barium Sulphate—			
Antwerp,	39 cks.		
Colours—			
Rotterdam,	4 cks. 2 cs. J. Rankine & Son		
Dyestuffs—			
Alizarine	8 cks.	J. Rankine & Son	
Extracts			
Antwerp,	6 cks.		
Baltimore,	16 brls.		
Indigo			
Amsterdam,	6 cts.		

Potassium Cyanide—			
Antwerp,	90 cs.		
Soap—			
Philadelphia,	24 bkts.		
Sodium Sulphate—			
Antwerp,	6 cks.		
Tartar—			
Bordeaux,	17 cks.		
Zinc Oxide—			
Antwerp,	51 cks.		
Zinc White—			
Rotterdam,	122 cks.		

TYNE.

Week ending January 7th.

Barytes—			
Rotterdam,	81 cks.	Tyne S. S. Co.	
Colours—			
Rotterdam,	1 ck.	Tyne S. S. Co.	
Extracts—			
Ghent,	25 cks.	Tyne S. S. Co.	
Glucose—			
New York,	200 brls.	Furness, Withy, & Co.	
Limestone—			
Antwerp,	1 crt.	Tyne S. S. Co.	
Pyrites—			
Huelva,	1,754 t.	Scott Bros.	
Tallow—			
New York,	40 hhds.	Furness, Withy, & Co.	
Waste Salt—			
Hamburg,	450 t.	Clephens & Wiencke	
White Lead—			
Ghent,	15 cks.	Tyne S. S. Co.	
Zinc Oxide—			
Antwerp,	25 brls.	Tyne S. S. Co.	

GOOLE.

Week ending December 28th.

Alkali—			
Calais,	4 cks.		
Alumina Sulphate—			
Rotterdam,	135 cks.		
Dyestuffs—			
Alizarine			
Rotterdam,	76 pkgs.		
Extracts			
Hamburg,	5 cks.		
Rouen,	100		
Ghent,	50		
Madder			
Rotterdam,	2 cks.		
Dyestuffs (otherwise undescribed)			
Boulogne,	40 cks. 4 cs. 12 pkgs.		
Potash—			
Dunkirk,	20 dms.		
Saltpetre—			
Hamburg,	40 cks.		
Rotterdam,	100 bgs.		
Zinc Oxide—			
Antwerp,	5 brls.		

GRIMSBY.

Week ending December 31st.

Chemicals (otherwise undescribed)			
Hamburg,	7 pkgs.		
Antwerp,	8 cks.		
Dyestuffs (otherwise undescribed)			
Dieppe,	34 cks.		
Size—			
Antwerp,	3 cks.		
Zinc Ashes—			
Antwerp,	16 cks.		

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			
Week ending January 11th.			
Ammonia—			
Ammonia—	3 cs.	£10	
Ammonia—			
Ammonia—	4 c.	£10	
Ammonia—			
Ammonia—	2 t.	£13	
Ammonia (Liquid)—			
Ammonia—	2 cs.	£8	
Ammonium Carbonate—			
Ammonia—	8 cs.	£15	
Ammonia—			
Ammonia—	4 c.	6	
Ammonia—			
Ammonia—	1 t. 2	30	
Ammonium Chloride—			
Ammonia—	1 t. 1 c.	£33	
Ammonia—			
Ammonia—	3 15	117	
Ammonia—			
Ammonia—	15 cks.	145	
Ammonia—			
Ammonia—	2	9	
Ammonium Sulphate—			
Ammonia—	150 t.	£1,500	
Ammonia—			
Ammonia—	50 16 c.	550	
Ammonia—			
Ammonia—	29	290	
Ammonia—			
Ammonia—	25 7	240	
Ammonia—			
Ammonia—	10	100	
Ammonia—			
Ammonia—	50 12	550	
Ammonia—			
Ammonia—	130 18	1,325	
Ammonia—			
Ammonia—	6 c.	£70	
Ammonia—			
Ammonia—	20 pkgs.	£23	
Ammonia—			
Ammonia—	20	23	
Ammonia—			
Ammonia—	5 c.	£69	
Ammonia—			
Ammonia—	4 c.	£29	
Ammonia—			
Ammonia—	20 cks. 100 drs.	230	
Ammonia—			
Ammonia—	20	£8	

Caustic Soda—			
Antwerp,	3 t. 5 c.	£30	
Algoa Bay,	2 13	81	
E. London,	3 12	92	
Chemicals (otherwise undescribed)			
Cape Town,	1 t 9 c.	£12	
Adelaide,	9 cs. 10 kgs.	75	
Citric Acid—			
Reval,	10 c.	£84	
Antwerp,	1 t.	160	
Genoa,	10	80	
Oporto,	1	8	
Halifax,	1	9	
Barcelona,	1	160	
Melbourne,	10	89	
Coal Products—			
Alizarine			
Bombay,	20 kgs.	£122	
Aniline			
New York,	12 cks.	£100	
Aniline Oil			
Genoa,	19 drs.	£720	
Anthracene			
Rotterdam,	54 cks.	£470	
Dusseldorf,	405	2,347	
Cologne,	54	282	
Benzol			
Rotterdam,	45 cks.	£317	
Coal Tar Dyes			
Boston,	6 cks.	£325	
Creosote			
Philadelphia,	5 cs.	£56	
Naphtha			
Melbourne,	10 cts.	£15	
Naphthalene			
Philadelphia,	170 cks.	£241	
Pitch			
Hockfield,	150 t.	£210	
Naples,	100 cks.	41	
Gijon,	1,374	1,924	
Philadelphia,	400 cks.	1,076 bgs.	305
Mauritius,	15 rnts.	8	
Tar			
Sydney,	110 pkgs.	£28	
Townsville,	100 drs.	20	
Mauritius,	23 rnts.	12	

Toluol			
Philadelphia,	20 drs.	£233	
Rotterdam,	15 pns.	140	
Coal Products (otherwise undesc'd.)			
Hong Kong,	20 brls.	£15	
Melbourne,	22 cts.	13	
Copper Sulphate—			
Lyttelton,	3 t.	£50	
Cream of Tartar—			
Melbourne,	10 c.	£25	
Sydney,	4 t.	332	
Disinfectants—			
Hong Kong,	3 cs.	£10	
Singapore,	41 pkgs.	32	
Calcutta,	15 drs.	25	
Penang,	100	35	
Trinidad,	12	42	
Manure—			
Barbadoes,	12 t.	£92	
Boulogne,	1 10 c.	16	
Genoa,	97 10	313	
Jersey,	50	410	
Valencia,	554 8	3,793	
Jersey,	80	800	
Oxalic Acid—			
Yokohama,	20 kgs.	£28	
Madras,	12 c.	18	
Phosphorus—			
Cape Town,	10 cs.	£143	
Potash—			
Yokohama,	10 c.	£15	
Potassium Bromide—			
Montreal,	5 c.	£29	
Potassium Prussiate—			
Oporto,	2 c.	£10	
Saltpetre—			
Oporto,	8 t. 9 c.	£173	
Rio de Janeiro,	8	9	
Vigo,	7 7	151	
New York,	13 15	281	

Sheep Dip—			
Calcutta,	1 t. 5 c.	£7	
Boca,	720 pkgs.	420	
E. London,	25 cs.	120	
Soda—			
Cape Town,	1 t. 14 c.	£6	
Algoa Bay,	5	2	
Soda Crystals—			
Newcastle,	41 t. 4 c.	£122	
Sodium Borate—			
Rio de Janeiro,	1 t. 1 c.	£32	
Sodium Sulphate—			
Ghent,	70 t.	£140	
Strontia—			
Yokohama,	1 t.	£31	
Sulphur—			
E. London,	30 pkgs.	£24	
Sulphuric Acid—			
Natal,	3 t. 17 c.	£80	
E. London,	43 cs.	31	
Superphosphate—			
Martinique,	350 t.	£1,400	
Treport,	19 19 c.	120	
Tartaric Acid—			
Sydney,	1 t. 5 c. 10 kgs.	£135	

LIVERPOOL.

Week ending January 11th.

Alum—			
Seville,	15 t. 7 c. 2 q.	£77	
B. Ayres,	8 10	51	
Talcahuano,	2	12	
Bombay,	11 2	59	
Samsoun,	8 3	41	
Patras,	4 8	21	
Algiers,	1	5	
Guayaquil,	1 15	9	
Havana,	10 5 3	46	
Piræus,	4 7	26	
Smyrna,	20 18	225	

Alum Cake—			Algoa Bay, 1 bx.			Magnesium Chloride—			Salt Cake—		
Calcutta,	3 t. 18 c.	£11	Barcelona,	200	5 cs.	New York,	12 t. 19 c.	£35	Baltimore,	346 t. 9 c.	
Ammonium Carbonate—			Chicago,	50		Manure—			Saltpetre—		
Hamburg,	10 c.	£14	Constantinople,	50		Genoa,	150 t. 1 c.	£506	Savanilla,	7 c. 2 q.	
Rotterdam,	1 t. 7 3 q.	46	E. London,	7		Ghent,	7 13 3 q.	305	Syria,	13 3	
Leghorn,	6	8	Fiume,	30		Gr. Canary,	2	5	Para,	1 t. 19 2	
Barcelona,	2 3	50	Hamburg,	20		Marseilles,	6 1 3 2	260	Sagua,	5 3	
Ammonium Chloride—			Maccio,	80		Bordeaux,	1	6	Porto Alegre,	9 3	
Patras,	9 c. 2 q.	£16	Malta,	18		Metallic Sodium—			Rio de Janeiro,	9 3	
Syria,	19 2	32	Melbourne,	47	10 bgs.	Rotterdam,	14 c. 1 q.	£157	Halifax,	10	
Philadelphia,	15 t. 11 1	350	Nagasaki,	100		Oxalic Acid—			Pernambuco,	2 10	
Alexandria,	1 1	36	Oporto,	66	2 cks.	Barcelona,	3 t. 2 c.	£92	Sheep Dip—		
Smyrna,	2 2	70	Pasages,	186		Painters' Colours—			B. Ayres,	18 t. 18 c. 3 q.	
Algiers,	2 4	7	Penang,	15	60 kgs.	Babia,	12 kgs. 14 brls.		M. Video,	3 1 2	
Constantinople,	2	66	Rouen,	34		Calcutta,	1 ck. 30 cs.		Soap—		
Alexandretta,	10	17	St. John's, N.B.,	50		Callao,	110 cks.		Alexandria,	10 bxs. 1 cs.	
Ammonium Sulphate—			San Francisco,	36		Cienfuegos,	4 brls.		Amsterdam,	290	
Barcelona,	10 t. 6 c. 3 q.	£104	Santander,	100		Coquimbo,	5		Bombay,	600	
Hamburg,	100 16	1,100	Seville,	775		Corfu,	5		Buguma,	1	
Demerara,	18 19 3	205	Sydney,	55		Matadi,	5	24 dms.	Conakry,	40	
Gr. Canary,	41 4	422	Tunis,	10	50 cks.	Nagasaki,	80 kgs.	42 cks.	Costa Rica,	200	
New York,	128 2 3	1,337	Valencia,	50		Para,	4 25	13 tcs.	Curacao,	324	
Huelva,	1 19 4	21	Valparaiso,	58		Pernambuco,	20	2 cks.	Demerara,	2,721	
Venice,	10 2 1	104	Chemicals (otherwise undescribed)			Salahora,	3 8		Gibraltar,	20	
Bordeaux,	7 11 3	76	Vera Cruz,	5 cks.	£10	Salonica,	110		Gijon,	1	
Genoa,	50 16 2	518	Odessa,	5 t.	150	Talcahuano, 1 cs. 10	8	2	Kurrachee,	100	
Las Palmas,	3 13	38	Singapore,	1 c.	18	Valparaiso, 270 117	121	5	Lagos,	10	
Baltimore,	92 8	964	Antwerp,	10	16	Baltimore,	200		La Guayra,	100	
Asbestos—			Hamburg,	16	27	Santos,	5 cks.	75	Las Palmas,	100	
Para,	1 cs.		Oporto,	8	1 q.	China Clay—			Malta,	29	42
B. Ayres,	10		Bombay,	3 1/4 t.		Bombay,	9 cks.		Melilla,	30	
Barium Chloride—			Lisbon,	1,240 1/2		Lisbon,	1,240 1/2		Monrovia,	30	
Montreal,	1 t. 4 c.	£8	Boston,	31		Coal Products—			Morant,	25	
Barytes—			Calcutta,	31		Alizarine	2 cks.		Old Calabar,	100	
New York,	8 cks.		Antiline Colours			Bombay,	3 cs.		Pram Pram,	50	
Bichromate—			Lisbon,	2 cks.		New York,	12 cks.		Rangoon,	11	
Ghent,	6 t. 7 c. 1 q.	£210	Antiline Oils			Yokohama,	2		Rouen,	20	
Bleaching Powder—			New York,	64 dms.		Phosphoric Acid—			Sierra Leone,	150	
Alicante,	30 cks.		Philadelphia,	10		Maceio,	1 c.	£5	St. Thomas,	500	
Bombay,	5 cs.		Antiline Salts			Phosphorus—			Salt Pond,	50	
Boston,	307		New York,	108 cks. 120 brls. 82 cs.		Tampico,	3 cs.	£36	Sinoe,	10	
Calcutta,	175	44	Rotterdam,	12 t.	£300	Potassium Bicarbonate—			Toronto,	500	
Dunkirk,	19		Cette,	200 brls.		Mexico City,	1 t. 13 c.	£69	Valparaiso,	1,650	
East St. Louis,	28		Pitch	1,233 t.		Vera Cruz,	2 cks.	£22	Vera Cruz,	1	
Genoa,	61		Cette,	200		Yokohama,	1 t. 17 c. 3 q.	80	Warri,	200	
Ghent,	159		Genoa,	1	4 c.	Pasages,	1	46	Algoa Bay,	300	
Havre,	25		Rouen,	1		Potassium Carbonate—			Barbadoes,	870	
Malaga,	10	9 kgs.	Lagos,	10 brls.		San Francisco,	1 t. 4 c.	£31	Calcutta,	2 50	
Naples,	18		Philadelphia,	20 1/4 t.		Potassium Chlorate—			C. C. Castle,	6	
New York,	347		Sierra Leone,	30 cks. 30 brls.		Rouen,	5 t.	£288	Capetown,	2,375	
San Sebastian,	38		Copperas—			Hiogo,	6 10 c.	385	Durban,	100	
Lisbon,	2		Vera Cruz,	6 cks.	£4	Boston,	5	260	E. London,	4,218	
Rouen,	26		Candia,	4 t. 10 c.	9	New York,	15 1	822	Gr. Bassam,	2	
Venice,	10		Smyrna,	10 19	21	Ghent,	2 4	13	Guayaquil,	500	
New York,	101 t. 9 c.	£857	Patras,	17	1	Hamburg,	2	124	Havre,	600	
Boston,	69 3	577	Bombay,	34	65	Boston,	5	292	Madras,	275	
Napanea,	9 18	82	Copper Sulphate—			Genoa,	3 5	183	Manaos,	600	
Boric Acid—			Rouen,	69 t. 10 c.	£1,077	Tampico,	12	43	Mexico,	2	
Rotterdam,	11 c. 3 q.	£24	Palermo,	1 19 3 q.	27	Yokohama,	15 10	848	Mossel Bay,	31	
Borax—			Constantinople,	2	30	Potassium Prussiate—			Natal,	1,899	65
Barcelona,	10 t. 2 c.	£300	Naples,	4 19 3	71	Yokohama,	18 c.	£88	New York,	100	
Alexandria,	19	28	Lisbon,	25 15 2	423	Salt—			Oran,	100	
Havana,	1 1	30	Venice,	24 7 3	353	Bakana,	16 t.		Panama,	1	
Antwerp,	19	29	Oporto,	17 1	256	E. London,	26 16 c.		Para,	200	
Hamburg,	7 3	207	Bordeaux,	20 3	310	Hamburg,	125		Portland M.,	1	
Rotterdam,	19 11 3 q.	582	Havre,	35 2	570	Landana,	5		Samarang,	3,267	
Calcium Chloride—			Antwerp,	2 19 2	66	Loango,	29		Singapore,	250	10
New York,	9 t. 16 c.	£30	Genoa,	4 9 2	66	Monrovia,	5		Venice,	6	
Sydney,	5 1	11	Tarragona,	15 5 3	222	New Orleans,	165		Soda Alkali—		
Boston,	24 10	56	Bremerhaven,	18	12	Opobo,	30 18		Genoa,	52 brls.	
Carbolic Acid—			Talcahuano,	8	132	Sierra Leone,	350		Odessa,	160	
Rouen,	13 t. 3 c.	£621	Coronel,	3	49	Akassa,	200		Smyrna,	40	
New York,	19	45	Disinfectants—			Algoa Bay,	9 1/4		Soda Ash—		
Rotterdam,	9 15	421	Odessa,	9 c. 3 q.	£27	Antwerp,	640		Baltimore,	212 cks. 1,450 bgs	
Caustic Soda—			Hong Kong,	19	17	Appam,	20		Barcelona,	29	
Amsterdam,	11 dms. 30 kgs		Dried Blood—			Axim,	5		Boston,	300	300
Bahia,	70		Gr. Canary,	10 t.	£58	Baltimore,	50		B. Ayres,	150 brls.	
Baltimore,	50	135 brls.	Flowers of Sulphur—			Batavia,	13 1/4	16	Cienfuegos,	4	
Cariz,	10 10		Oporto,	24	192	Boston,	129		Corfu,	50	
Calcutta,	116 9		Guano—			Brisbane,	50		M. Video,	50	
Ceara,	30		Malaga,	199 t. 15 c.	£1,798	Brass,	5		New York,	1,447	224 tcs. 9
Cienfuegos,	20		New York,	70 t. 16 c.	£260	Calcutta,	2,720		Patras,	80 brls.	
Corfu,	40		Iron Sulphate—			Cameroons,	16 14		Porto Alegre,	50	
Genoa,	68		Calcutta,	17 t. 9 c. 2 q.	£32	Conakry,	35		Rio de Janeiro,	7	
Ghent,	15 19		Lime—			Galveston,	475		Samarang,	25	
Hamilton,	10		Maceio,	1 t. 5 c.	£9	Ghent,	289		San Francisco,	531	
Havana,	110		Magnesium Carbonate—			Gr. Bassa,	5		Bahia,	10	
Havre,	18		Mexico City,	3 c. 1 q.	£8	Isles de Los,	50		Cartagena, Sp.,	10	
Jaffa,	80		Manure—			Melbourne,	20		Genoa,	6	
Liston,	39	16 cks.	Genoa,	150 t. 19 c.	£1,798	Natal,	26 16		Malta,	20	
Malaga,	80		Rotterdam,	17 t. 9 c. 2 q.	£32	New York,	17 17		Maranham,	20	
Naples,	32		Manure—			Para,	213		Naples,	70	
New York,	670	120	Genoa,	150 t. 19 c.	£1,798	Philadelphia,	65		Oporto,	10	
Odessa,	80		Manure—			Rio de Janeiro,	1		Philadelphia,	935	
Rotterdam,	18		Genoa,	150 t. 19 c.	£1,798	Rotterdam,	392		Rotterdam,	20	
Samarang,	75		Genoa,	150 t. 19 c.	£1,798	Sinoe,	4		Samos,	20	
Yokohama,	300		Genoa,	150 t. 19 c.	£1,798	Wilmington,	262		Valparaiso,	50	

Soda Crystals—

Antofagasta,	20 cks.
Calcutta,	70 brls. 14 kgs.
Constantinople,	50
N. York, 280 cks.	
Samarang,	134
Alexandretta,	30
Boston,	84
Malta,	100
St. John's, Nfld.,	70
Seville,	6 cs.

Sodium Bicarbonate—

Aleppo,	7 kgs.
Antwerp,	3 cks.
Beyrout,	20
Brisbane,	2
Genoa,	40
Halifax,	100
Hamburg,	6
Havre,	145
Hiogo,	300
Leghorn,	65
Melbourne,	400
Naples,	115
Palermo,	30
St. John's, Nfld.,	25
San Francisco,	200
Sydney,	150
London, Ont.,	100
New York,	334 dms.
Seville,	150 brls.

Sodium Carbonate—

Boston,	128 dms. 84 brls.
New York,	280

Sodium Chlorate—

Hamburg,	50 kgs. 20 brls.
New York,	100
Rotterdam,	50
Antwerp,	20

Sodium Silicate—

Bilbao,	16 cks.
Halifax,	22
Lisbon,	22
Madeira,	10
Oporto,	10
Rotterdam,	15
Seville,	20
Sydney,	36
Barcelona,	290
Boston,	20
San Sebastian,	130

Sodium Stannate—

Antwerp,	5 kgs.
Rouen,	5 cks.

Sulphur—

Philadelphia,	71 t. 11 c.
Antwerp,	5 11
Boston,	230 2
Callao,	1 5
Rouen,	20

Tallow—

La Guayra,	3 cks.
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Tannic Acid—

Genoa,	3 c.
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Tartaric Acid—

Talcabuanano,	1 c.
Havana,	1 2 q.
Halifax,	5 2

Turpentine—

Bombay,	2 dms.
Calcutta,	13
Mexico,	1 brl.

Ultramarine—

Boston,	5 cs.
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Varnish—

Barranquilla,	4 cs.
Landano,	12 brls.
Manila,	1 ck.
Trinidad,	4 dms.
Vera Cruz,	2
Smyrna,	32

White Lead—

Bahia,	50 kgs.
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Zinc Sulphate—

Bombay,	3 t. 9 c. 2 q.
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HULL.

Week ending January 7th.

Alkali—	
Danzig,	10 cks.
Antimony—	
Reval,	40 cs.
Benzol—	
Rotterdam,	23 cs.
Bichrome—	
Flushing,	4 cks.
Bleaching Powder—	
Hango,	21 cks.
Stettin,	22

Caustic Soda—

Antwerp,	37 dms.
Copenhagen,	25
Danzig,	95
Ghent,	10
Hango,	20
Libau,	1
Reval,	130 cs. 70 cks.

Chemicals (otherwise undescribed)

Antwerp,	4 cs. 26 kgs.
Amsterdam,	12
Alexandria,	12
Bremen,	1
Christiania,	3 50 6
Danzig,	40 pks.
Flushing,	51
Ghent,	249 bgs.
Gothenburg,	11 11 50
Groningen,	15
Hango,	1
Hamburg,	1 pkg. 87
Harlingen,	48
Libau,	138 pks.
Reval,	119 pks.
Rotterdam,	82 150 pks. 11
Stettin,	80 pks. 41

Cottonseed Oil—

Antwerp,	990 c.
Amsterdam,	101
Alexandria,	234
Bremen,	150
Flushing,	441
Hango,	101
Konigsberg,	100
Hamburg,	728
Rotterdam,	2,555
Trieste,	400

Creosote—

Amsterdam,	95 cks.
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Dyestuffs (otherwise undescribed)

Danzig,	1 cs.
Flushing,	1 ck.
Hamburg,	6 27 1 dm.
Reval,	13
Rotterdam,	1
Stettin,	88 bls.

Linseed Oil—

Amsterdam,	205 c.
Christiania,	349
Hamburg,	119

Manure—

Rotterdam,	300 bls.
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Mineral White—

Flushing,	100 bls.
Hamburg,	50 t.

Painters' Colours—

Antwerp,	3 cs. 34 cks. 1 dm.
Amsterdam,	18
Boston,	2 kgs.
Christiania,	1 1
Danzig,	3
Ghent,	1
Hamburg,	5 1 40 pks.
New York,	160
Rotterdam,	1 9
Stettin,	4

Paraffin Wax—

Stettin,	75 bls.
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Pitch—

Antwerp,	280 t.
Dunkirk,	201

Salt—

Calcutta,	810 t.
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Size—

Flushing,	10 cks.
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Tar—

Rotterdam,	3 cks.
Stettin,	4 cs.

Varnish—

Amsterdam,	1 ck.
Copenhagen,	2 dms.
Dunkirk,	1 cs.
Ghent,	1

GLASGOW.

Week ending January 12th.

Ammonium Chloride—	
Genoa,	3 t. 12 c.
Ammonium Sulphate—	
Genoa,	67 t. 1 c.
Antwerp,	91 4 3/4
Valencia,	291 13
Jamaica,	2 18
Demerara,	40 8
Bordeaux,	10 9
Bleaching Powder—	
Hong Kong,	13 t.

Chloride of Lime—

Boston,	6 t. 2 c.
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Creosote—

Bordeaux,	358 t. 10 c.
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Dyestuffs—

Castile Extract	
Valencia,	1 t. 16 1/4 c.

Sumac Extract

Valencia,	2 t. 15 1/4 c.
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Linseed Oil—

Adelaide,	15 t. 19 c.
Sydney,	2 7
Chili,	9 7 1/4

Magnesia—

Valencia,	20 t. 3 1/4 c.
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Magnesium Sulphate—

Calcutta,	6 t. 8 c.
Sydney,	3 12

Manure—

St. Kitts,	4 t. 15 1/2 c.
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Naphtha—

Rouen,	22 t. 4 c.
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Paint—

New York,	3 t. 1 c.
Calcutta,	3 3 1/4
Straits,	3 15 1/2
Chili,	16 3

Painters' Colours—

Singapore,	17 t. 12 1/2 c.
Hong Kong,	7 2 1/2
Adelaide,	1 15 1/4
Jamaica,	56

Paraffin Wax—

Rouen,	3 t. 12 1/2 c.
Italy,	16 10 1/2
Christiania,	11 1/4
Japan,	41 9 3 1/2 q.
Genoa,	28 9
Antwerp,	13 3 1/2

Pitch—

Boston,	184 t. 8 c.
Amsterdam,	248
China,	4 19 1/4
Genoa,	51
Oporto,	147 6

Potassium Bichromate—

Rouen,	25 t. 12 1/4 c.
Italy,	12
Amsterdam,	39 cks. 430
Japan,	15 8 1/2
Genoa,	13 1
Antwerp,	5 3
Valencia,	40 15 1/2

Potassium Chloride—

Colombo,	7 t. 3 1/4 c.
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Potassium Prussiate—

New York,	9 t. 10 1/2 c.
Rouen,	10 1/4

Salt Cake—

Baltimore,	199 t. 17 c.
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Sheep Dip—

New York,	3 t. 4 1/2 c.
Chili,	2 13 1/2

Soap—

Boston,	1 t. 7 c.
Chili,	1 11 1/4
Jamaica,	10 10

Sodium Bichromate—

Rouen,	18 t. 18 c.
Genoa,	28 19 1/4
Rouen,	46 14 1/4

Tar—

Boston,	47 t. 3 c.
Colombo,	40
Calcutta,	63
Singapore,	69

TYNE.

Week ending January 7th.

Alkali—	
Hamburg,	1 t. 15 c.
Venice,	3 2
Alum—	
Naples,	14 t. 5 c.
Ammonia Alkali—	
Barcelona,	16 t. 18 c.
Ammonium Sulphate—	
Genoa,	130 t.
Anthracene—	
Rotterdam,	23 t. 8 c.
Antimony—	
Amsterdam,	1 t.
Barcelona,	3 15 c.
Hamburg,	12 10
Copenhagen,	6
Rotterdam,	1

Arsenic—

Gothenburg,	2 t. 2 c.
Barcelona,	2 6
Venice,	20 3

Barium Binocide—

Rouen,	14 t. 1 c.
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Barium Chloride—

Rouen,	4 t. 18 c.
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Barium Hydrate—

Rouen,	1 t. 3 c.
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Barytes—

Rotterdam,	58 t. 8 c.
Rouen,	1 t.

Bleaching Powder—

Ancona,	49 t.
Amsterdam,	64 1 c.
Drontheim,	10 3
Ghent,	15 15
Antwerp,	19 7
Genoa,	10 7
Bergen,	5 2
Rouen,	8 7

Caustic Soda—

Ancona,	3 t. 9 c.
Gothenburg,	1 9
Barcelona,	41 14
Antwerp,	4 18
Genoa,	25 13
Seville,	42 18

Magnesia—

Barcelona,	10 t. 5 c.
Hamburg,	2 2
Antwerp,	2 9
Rouen,	1 10

Oxalic Acid—

Genoa,	3 t. 8 c.
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Paint—

Hamburg,	1 t. 3 c.
Rotterdam,	3

Phosphorus—

Genoa,	1 t. 12 c.
Seville,	14

Soda—

Ancona,	18 t. 17 c.
Amsterdam,	8 6
Venice,	9 13
Randers,	5
Rotterdam,	16 2
Bergen,	4 15
Genoa,	40 8

Soda Ash—

Gothenburg,	6 t. 14 c.
Genoa,	5 7

Sodium Hyposulphite—

Rotterdam,	19 t. 7 c.
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Sodium Silicate—

Seville,	5 t. 15 c.
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Sodium Sulphate—

Christiania,	5 c.
Genoa,	10 t. 2

Sulphur—

Drammen,	10 t.
Drontheim,	50
Antwerp,	35
Copenhagen,	30
Gothenburg,	100

Superphosphate—

Venice,	100 t. 1 c.
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GOOLE.

Week ending December 28th.

Alum—

Rotterdam,	20 cks.
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Benzol—

Ghent,	19 cks.
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Coal Products (otherwise undes.)

Rotterdam,	478 cks.
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Manure—

Ghent,	200 bgs.
Ostend,	190

Pitch—

Antwerp,	41 t.
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PRICES CURRENT.

WEDNESDAY, JAN. 18th, 1893

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	11/-
Glacial	per cwt.	50/-		
Arsenic S.G., 2000°	per lb.	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	per lb.	0	0	3
Nitric 80° Tw.	per lb.	0	0	1¾
Nitrous	per lb.	0	0	1¾
Oxalic	nett	0	0	3¾
Phosphoric, 1750°	per lb.	0	1	2½
Picric	per lb.	0	1	1
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	per lb.	5	10	0
(Pyrites, 168°)	per lb.	3	5	0
(free from arsenic, 145°)	per lb.	1	5	0
Sulphurous (solution)	per lb.	2	15	0
Tannic (pure)	per lb.	0	1	2
Tartaric	per lb.	0	0	11½
Arsenic, white powdered	per ton	12	15	0
Alum (loose lump)	per lb.	5	5	0
Alumina Sulphate (pure)	per lb.	5	0	0
Aluminium	per lb.	2s. 8d.	to	0 3 2
Ammonia, Anhydrous	per lb.	0	1	1
" 880=28°	per lb.	0	0	2½
" =24°	per lb.	0	0	1¾
Carbonate	nett	0	0	3¾
Muriate	per ton	20	0	0
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
Nitrate	per ton	38	10	0
Phosphate	per lb.	0	0	10½
Sulphate (grey) London	per ton	10	5	0
(grey) Hull	per lb.	10	5	0
Aniline Oil (pure)	per lb.	0	0	7
Aniline Salt	per lb.	0	0	6½
Antimony	per ton	45	10	0
(tartar emetic)	per lb.	0	1	0
(golden sulphide)	per lb.	0	0	10
Barium Chloride	per ton	7	10	0
Carbonate (native)	per lb.	3	10	0
Sulphate (native levigated)	per lb.	45/-	to	75/-
Bleaching Powder, 35 %	nett	7	10	0
Liquor, 7 %	per lb.	3	10	0
Bisulphide of Carbon	per lb.	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	per ton	17/6	to	35/-
Coal Tar Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	8
Magenta	per lb.	0	3	9
Coal Tar Products				
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	0
Benzol, 90 % nominal	per gallon	0	2	3
50/90	per lb.	0	1	10
Carbolic Acid (crystallised 40°)	per lb.	0	0	7¼
(crude 60°)	per gallon	0	2	2
Creosote (ordinary)	per lb.	0	0	1¼
(filtered for Lucigen light)	per lb.	0	0	1¾
Crude Naphtha 30 % @ 120° C.	per lb.	0	0	11
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	per lb.	1	8	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	0
Coke-oven Oils (crude)	per lb.	0	1	1
Copper	per ton	46	0	0
Sulphate	per lb.	16	10	0
Oxide (copper scales)	per lb.	42	0	0
Glycerine (crude)	per lb.	13	0	0
(distilled S.G. 1250°)	per lb.	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
Sulphide (antimony slag)	per lb.	2	0	0
Lead (sheet) for cash	per lb.	11	0	0
Litharge Flake (ex ship)	per lb.	13	10	0
Acetate (white)	per lb.	25	10	0
brown	per lb.	17	5	0
Carbonate (white lead) pure	per lb.	20	0	0
Nitrate	per lb.	20	0	0
Lime, Acetate (brown)	per ton	6	2	6
(grey)	per ton	10	15	0
Magnesium (ribbon and wire)	per oz.	0	2	3
Chloride (ex ship)	per ton	2	7	6
Carbonate	per cwt.	1	17	6
Hydrate	per ton	17	0	0
Sulphate (Epsom Salts)	per ton	2	19	0
Manganese, Sulphate	per lb.	17	15	0
Borate	per cwt.	2	12	6
Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	2	0
Naphtha (Wood), Solvent	per lb.	0	3	10
Miscible, 60° O.P.	per lb.	0	4	7½
Oils:—				
Cotton-seed	per ton	20	10	0
Linseed	per ton	20	0	0
Lubricating, Scotch, 890°—895°	per gallon	7	5	9
Petroleum, Russian	per gallon	0	0	4½
American	per gallon	0	0	5½
Potassium (metal)	per oz.	0	3	7
Bichromate	nett per lb.	0	0	4½
Carbonate, 90% (ex ship)	per ton	18	0	0
Chlorate	per lb.	0	0	8½
Cyanide, 98%	per lb.	0	2	2
Hydrate (Caustic Potash) 80/85 %	per ton	22	5	0
(Caustic Potash) 75/80 %	per lb.	21	5	0
(Caustic Potash) 70/75 %	per lb.	30	15	0
Nitrate (refined)	per cwt.	1	2	6
Pernanganate	per cwt.	3	7	6
Prussiate Yellow	per lb.	0	0	9½
Sulphate, 90 % (ex ship)	per ton	9	15	0
Muriate, 80 % (do.)	per lb.	8	0	0
Silver (metal)	per oz.	0	3	4½
Nitrate	per lb.	0	2	10
Sodium (metal)	per lb.	0	3	4
Carb. (refined Soda-ash) 48 %	nett per ton	6	2	6
(Caustic Soda-ash) 48 %	per lb.	5	0	0
(Carb. Soda-ash) 48 %	per lb.	5	2	6
(Carb. Soda-ash) 58 %	per lb.	5	7	6
(Soda Crystals)	per lb.	3	2	6
Acetate (ex-ship)	per lb.	18	0	0
Arseniate, 45 %	per lb.	11	15	0
Chlorate	per lb.	0	0	9½
Borate (Borax)	net, per ton	29	0	0
Bichromate	per lb.	0	0	3½
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	per ton	11	0	0
(74 % Caustic Soda)	per ton	10	10	0
(70 % Caustic Soda)	per ton	9	10	0
(60 % Caustic Soda)	per ton	8	10	0
(60 % Caustic Soda, cream) (f.o.b.)	per ton	8	5	0
Bicarbonate	per lb.	6	10	0
Hyposulphite	per lb.	7	10	0
Manganate, 30%	per lb.	16	0	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8	10½
Nitrite, 98 %	per ton	30	0	0
Phosphate	per lb.	15	10	0
Prussiate	per lb.	0	0	7½
Silicate (glass)	per ton	5	7	6
(liquid, 100° Tw.)	per lb.	4	5	0
Stannate, 40 %	per cwt.	3	5	0
Sulphate (Salt-cake)	per ton	1	10	0
(Glauber's Salts)	per lb.	1	15	0
Sulphide	per lb.	7	15	0
Sulphite	per lb.	6	12	6
Strontium Hydrate, 100%	per lb.	8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7½
Barium, 95 %	per lb.	0	0	5
Potassium	per lb.	0	0	7½
Sulphur (Flowers)	per ton	8	0	0
(Roll Brimstone)	per lb.	6	15	0
Brimstone: Best Quality (nominal)	per lb.	4	10	0
Superphosphate of Lime (26 %)	per lb.	2	7	6
Tallow	per lb.	26	5	0
Tin (English Ingots)	per lb.	95	10	0
Crystals	per lb.	0	0	6½
Zinc (Spelter)	per ton	18	0	0
Chloride (solution, 96° Tw.)	per lb.	6	0	0

THE CHEMICAL TRADE JOURNAL

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297.

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ADVERTISEMENTS.

the Executors of the late Mrs. Louisa Houlder.—An Income of £367 per annum secured on Freehold Chemical Works, at Southall, with reversion back-rental at the end of less than 31 years.

MRS. FULLER, HORSEY, SONS, AND SELL. are instructed to SELL BY AUCTION, at the Mart, Token-London, E.C., on Friday, February 24th, at 2 precisely, the above **JOINT INVESTMENT**, comprising the Norwood Chemical Works, having a frontage to a branch dock of the Grand Junction Canal of 238 ft. occupying a ground area of 2 a. 0 r. 27 p. The buildings consist of offices, workers' workshop, lime shed, retorting, boiler houses and packing sheds, workshops, stables, laboratories, range of stores, nitre shed and two chimneys. There will also be included in the purchase the whole of the landlord's rent and machinery attached to the freehold, which includes six lead pipes for sulphuric acid. The works are let on lease to a responsible tenant for years unexpired, at a rent of £267 per annum; lessee paying all rates, taxes, and repairs. May be viewed by orders, and particulars had of A. Houlder, Esq., Solicitor, Lonsdale Chambers, 27, Chancery Lane, E.C. (where a copy of the lease may be seen); at the Mart; and of the Messrs. Billiter Square, London, E.C.

CHEMICAL MANURE MANUFACTURERS AND OTHERS.
IMPORTANT SALE OF SULPHATE OF AMMONIA.
S. TALL AND CO., will sell by public auction on Friday, 31st January, 1893, at 3-0 p.m. prompt, at No. 17 Warehouse, Albert Dock, Hull, 1,000 to 2,000 bags **SULPHATE OF AMMONIA** as damaged by water. Landed from the s.s. *Esperanza* bound to London. In lots as customary. The goods may be inspected on day of sale. Particulars apply to the Selling Brokers, 38, Whitefriargate; or to Wm. Manson & Co., agents for the underwriters, 15, Parliament Street, Hull.

Notices.

Communications for the *Chemical Trade Journal* should be sent to the Editor, and Cheques and Post Office Orders made payable to—

WISBROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, Business Wants, and Specific Articles for Sale by Private Contract are taken in the *Chemical Trade Journal* at the following rates:—

30 Words and under

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:

30 Words and under

Advertisements, Announcements in the Directory Columns, and all Advertisements prepaid, are charged at the Tariff rates which will be forwarded on

JANUIS CLAUSIS.

IF in giving expression to our hopes in respect to the result of the conference between the River Conservancy Committee of the Borough of Salford, and the Mersey and Irwell Joint Committee, we led any of our readers to anticipate a full report of what took place at the said conference, they have our fullest sympathy, as on looking through our pages this week they will find that, like ourselves they, are doomed to have their anticipations disappointed.

It will be remembered, doubtless, that Monday last, 23rd inst., was the date we announced for the holding of this meeting, and it certainly was our intention to have reported the meeting for the benefit of the many interested in this matter. Because, however, this report does not appear, it must not be supposed that the meeting was not held, for such was not the case. We do know that the meeting took place, but beyond the bare statement of the fact we can no further go.

The explanation of this is simple. The meeting being held at the Town Hall, it rested with the Conservancy Committee to decide whether the press were admitted to the meeting or no, and the decision was in the negative. It would be impertinent to inquire the why and the wherefore of this step, and as anything akin to impetration would be *infra dig.*, and speculation as to the upshot of the proceedings idle, we must content ourselves with twiddling our thumbs, and waiting till such time as the interested parties either see fit, or else are at liberty to enlighten us. From our past experience of the meetings of the Joint Committee, we think it is not unlikely that reference will be made to this matter at the next meeting, and, if so, we may be able to intimate what advance has been made towards the settlement of this important point.

There is one construction at any rate which may safely be put upon the action of the Corporation in sitting with closed doors, and that is the supposition that the act conveys the same symbolical meaning, which according to ancient Mythology was attached to the closing of the doors of the temple of Janus, namely, a sign of peace, and for our own part we trust it may be so.

In the meantime we can at least record what is being done to hurry on the work of purifying the watershed of the district.

At the last meeting of the Manchester Section of the Society of Chemical Industry, Mr. J. Carter Bell pointed out one or two rather novel sources of pollution, mention of which is made elsewhere in this issue, and further explained what was being done to avoid such pollution and turn if possible the waste products to account. We also have before us the report of the proceedings of the January meeting of the Ribble Joint Committee. The report of the chief Inspector (Mr. W. Naylor) shows that manufacturers are doing their best to fulfil the wishes of the Joint Committee in regard to the prevention of pollution, and extreme measures will only be necessary in a few instances.

The letters received from sanitary authorities who had been served with notices intimating that legal proceedings would be instituted at the end of two months, show that most of these authorities have at length bestirred themselves—though of course at present little has been done beyond preparing plans and applying to the Local Government Board for the necessary powers to borrow money and such like. There is an amusing ingenuousness about the letter of explanation sent by the Blackrod Local Board, for that authority with well feigned ignorance enquires what it is the Joint Committee complain about, and no doubt the answer of inefficient treatment of their sewage will come upon them as a revelation. The Leyland Local Board admits that the working of their intermittent downward filtration scheme has not been carried on as it should have been; but now that it has taken the matter in hand itself it hopes to turn a satisfactory effluent into the river. The Horwich Local Board however send the most hope-inspiring answer, if their statement will stand the test which they invite; for this Local Board is of the opinion that it successfully treats its sewage, and thinks if samples are taken and analyzed the Committee will be of the same opinion. Doubtless the Committee will do so.

It remains to be seen whether the treatment is deemed efficient, but be that as it may, we regret that there are not more Local Authorities prepared to advise the adoption of a similar step on the part of the Committee for such an invitation seems to bring the matter out of the stage of intentions into one of action.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

AT the last meeting of this section, Mr. Ivan Levinstein (the chairman stated that a communication had been received from the Chamber of Commerce, enclosing a resolution of the Special Committee of the Chamber, appointed to consider the question of amending the Patent laws. The resolution asked the Government to take early steps to bring in a bill reforming the laws, so as to make them, in regard to preliminary examinations, analogous to the law and practice in force in the United States. The Society of Chemical Industry was asked to co-operate with the Committee of the Chamber in the matter. The chairman said that the Society entirely agreed with the action of the Committee. They objected to the Government taking fees and granting protection to any nonsensical thing entirely devoid of novelty. The consequence of the present system was that patents were generally discredited. The genuine inventor had no valid title, and for want of confidence in patents, enterprise in their exploitation was stifled. Through lack of a strict preliminary examination, a number of mere speculative, bogus, or "bluff" patents were granted, seriously interfering with genuine and honest invention. He moved that the Section give cordial support to the Committee of the Chamber, and that a Committee of the Section be appointed to co-operate.

Dr. Schunck seconded the resolution, which was adopted.

Mr. W. Crippin read a paper, in which he discussed the advantages of cop dyeing. He produced, for the inspection of members, samples of yarn and cloth dyed and woven at his works and in Germany. There was an advantage of from 10 to 15 per cent. to the weaver when working with the cop-dyed yarn, as compared with yarn wound upon pirns. This advantage was gained by the increased length of yarn on the cop, as against the length that could be put upon the pirn. He believed that cop-dyeing would have a great influence in cheapening the production of coloured goods generally,—more particularly gingham, Oxfords, handkerchiefs, satteens, linings, and unions in cotton, wool, and silk. The manufacturer could also use softer-spun yarns than was possible where the yarn had to be wound after being dyed.

A paper on the utilisation of skim-milk for manufacturing purposes was read by Mr. J. Carter Bell, hon. secretary of the Section. Many would think, he said, that skim-milk had very little to do with manufacturing chemistry or the scientific chemist. His attention had been called to it in connection with the Rivers Pollution Act. A large firm of cheesemakers in Shropshire were in the habit of sending all the whey and skim-milk which could not be used for their pigs into the nearest river. He was applied to for information as to the best means of utilising these waste products. Two methods had presented themselves to him. The first was an invention for making all kinds of

buttons, door knobs, electric lighting furniture, umbrella handles, many sundry small things from lactite, a substance made from milk. Mr. Bell explained the details of the process, and various finished articles. A large factory was fitted up near Macclesfield for the manufacture of lactite, but he was informed that up to the time it had not been a financial success, for the articles which had been made, such as buttons, readily broke in pieces on the touch, or often on none at all. He could not see how lactite and handles could compete with the time-honoured and well-known articles. Still, in cases where the skim-milk had to be thrown away, the British farmer might find it profitable to turn it into lactite when well prepared, would last for any time. The second method, which he had been experimenting with was to convert the skim-milk whey into a portable article of food, for, as was well-known, it was impossible to send skim-milk or whey at a profit to distant markets. Therefore some simple process by which the farmers could get rid of their waste at a small cost, and leave a residue rich in nitrogenous matter, a thing very much to be desired. Some specimens which had been produced were, he said, made from skim-milk and whey. The first given to the compound was Lactoserin, the article being produced by a variety of ways as food for man, cattle, and poultry. The manufacture of these products ought to possess great interest for the British farmer, for it would enable him to turn to marketable value what had hitherto been a waste product. This manufacture of dry curds would be carried on at small places as well as large, but it would be economical to work 1,000 gallons than it would be to work 100 gallons. More than about one farthing a gallon for the skim-milk used in the manufacture of Lactoserin was manufactured by evaporating skim-milk and whey in different proportions for different purposes. A special evaporation vessel was required, which would hold about 250 gallons, and in Sweden (where the process was worked) £55. A machine stirring up of the mass as it was cooling down would cost £100, size corresponding to the 250 gallons. The cheapness and simplicity of the process should recommend it to the agriculturist.

SCOTTISH SECTION.

A meeting of this Section was held in Glasgow on January 17th. Chas. A. Fawsitt presiding. The committee presented a report on the mineral oil flash-point agitation, the dealing with which was remitted to them at last meeting. First of all they communicated to the members Sir Frederick Abel and Mr. Boverton Redwood through the secretary, inviting them to make any statement they thought fit, and would be read before the meeting appointed for January 24th. The secretary read the replies received thereto. Mr. Redwood said that as he had co-operated with Sir Frederick Abel in the experiments undertaken with a view to determining a safe flash-point, he would say nothing without first consulting him. Sir Frederick Abel's reply was rather longer. He had yet to determine for himself the results of the tests now advanced by Mr. D. R. Stewart, and it was impossible for him to do this in time for the January meeting. Section. Further, any statement he might eventually have to make would be addressed to the editor of the Journal of the Society of Chemical Industry, in which Mr. Stewart's paper had been published. Mr. Fawsitt then intimated that the committee, after due consideration, had decided to form an executive sub-committee, and that a committee had been formed accordingly. A report from this committee would be presented, but a considerable time might elapse before further steps were taken in open meeting. Mr. Joshua I. Junr., then read his promised paper on "The extraction of sodium and iodine in Northern Chili." Having resided on the spot some time, Mr. Buchanan is most intimate with his subject, and described the mode of ore getting, and subsequent chemical processes, in considerable detail, and the matter proved to be of considerable interest to the members present. At the conclusion of the reading some half-dozen of these, including the chairman, put questions to the lecturer on moot points, one of them being the extent of the nitrate fields and their probable duration. In reply, Mr. Buchanan stated that, irrespective of the fields now being worked, he had seen for over 150 miles over a virgin tract, where the deposit of raw material was continuous and quite four feet thick. Exhaustion in the nitrate regions was regarded as a very distant eventuality; and besides, quite recently had been discovered in Mashonaland, South Africa, which was reported as likely to afford a good yield. The cost of extraction, especially as regards iodine, was heavy and against the industry, and there was wide scope for improvement in many directions, of course, that of cheapening the production. Replying to the presence of nitrate of potash in these deposits, he said that it was but quite in unappreciable proportions. As to the geological position of the Chilean nitrate regions, he had no specific information, and the operators were far too lazy and callous to dig down very far for theoretical purposes. A most cordial vote of thanks was passed, and the proceedings closed.

REVIEW OF SCOTTISH OIL AND PARAFFIN INDUSTRIES IN 1892.

(Specially contributed).

BETWEEN five and six years ago, viz., in 1887, things looked critically grave for these industries, brought about to a large extent by over multiplication of works, and consequent keenness of competition. The extreme danger led to combination in that black year, with the view of restoring product values to a remunerative mark, and maintaining them there. It was quite enough to have to fight a powerful foreign rivalry, without keeping up a ruinous fight amongst themselves. The combination held, and even led to an agreement with the American producers of solid paraffin, for the upholding of better prices in that section here and on the continent. When the Scottish companies balanced in 1888, there was hardly anything to divide, which showed the narrowness of the shave, for had the competition not been stopped in the previous year, a number of them would inevitably have gone to smash. There was a visible improvement in 1889, and the results of 1890 showed a further gain. The Scotch railway strike, by which 1891 was ushered in, entailed loss on these companies, but the healthier of them seemed still to be making way when the annual time of balancing came, although the less vigorous showed signs of uneasiness, one of them (the West Lothian) giving up the struggle and going into liquidation.

At the opening of 1892 the feeling generally prevailed that something was going to happen. Agreement with the American makers of scale and wax fell to be renewed at the close of January, but this did not come off cordially as heretofore, and rupture was barely averted. The old values were continued, but the chief users, the associated candlemakers of Great Britain, rebelled, and refused to buy until some drop was conceded. Both held firm for months; unsold stocks of scale and wax became very large, and the poorer companies were at their wits' end for money wherewith to jog along. Meanwhile the combination between the Scotch makers themselves continued nominally intact, and in August the new season's prices of burning oil were refixed, the values of the previous year being continued, and on that basis large contracts were booked. In this section matters were fairly healthy, prices being at least sufficient, if not very lucrative. Products impossible of being artificially upheld are sulphate of ammonia and lubricating oils, these having to follow the general market. The former have ruled unusually low, and the lubricants suffered a fall all round, so that there were no quotations distinctly remunerative except those for paraffin scale and wax, the buying of which, as we have seen, had stopped. Coupled with low product values also were the high costs for the chemicals, fuel, and labour necessary in the manufacture. If the candle-makers had tired of their struggle and resumed buying, matters might have rubbed on, but they held obstinately to their contention. The companies became still more sorely pressed for money, and the Burntisland called up its remaining ten shillings of capital, followed shortly after by the announcement that unless it could raise £70,000, of new debenture stock at once, the concern would be done for. There were no investors, and the Burntisland accordingly drifted into liquidation. This took place in September, and it being seen that the large accumulation of scale and wax at the Burntisland works would have to go on the market for whatever they would fetch, the disaster gave the finishing blow to combination. The Pumpherson Company, one of the strongest of the few strong ones remaining—"strength" being used here only in a comparative sense, withdrew from the Scottish Mineral Oil Association and from the American agreement, offering its scale and wax at a reduction of a halfpenny a pound. Agreement thereupon wholly collapsed all over the field, and there was a rush upon the market with these accumulations of scale, causing a drop of from about 3d. per lb. to 1½d. or less. The gravity of this fall may be partly estimated on remembering what this signifies to the annual revenue of the industry. It has been calculated that the fall means leakage of revenue to the extent of £200,000. The Americans acquiesced in the break-up almost cheerfully, and there was reason to infer that of late they had become careless about the maintenance of the compact with the Scotch makers. They at once reduced prices of scale and increased the bulk of their importations of the same into this country, followed shortly by a reduction in their price of refined petroleum, all of which tells sorely against the Scotch industry. Coming close at the back of the fall of the Burntisland Company (once a powerful 20 per cent. paying concern) were indications of extremity on the part of the Clippens Company, an affair of very large capital, and at one time held to be altogether solid and prosperous. Within brief space the liquidation of the Clippens had to be announced, and it is now being wound up. In the case of the Burntisland, and also of the Clippens, it was proposed to continue operations in the hope of retrieving, or at least till a better time for realising would arrive, and in this proposal the creditors (or the great majority of them) concurred equally with the shareholders, but the general outlook is so bad that the Court of Session has refused sanction to any such hap-hazard continuance, and indeed it seems clear that to continue operations now

would be only to fritter away more of the assets. At the same time the forced sale of mineral oil plant at present must prove disastrous enough. The plant and minerals of the West Lothian Oil Company (stopped more than a year ago) were during the year put up for auction sale at £20,000., then at £10,000., and again at £5,000., but there seemed nobody wanting that sort of property at any price, and unsold it is to this day.

During the past three months a movement has been on foot amongst the Scotch Oil Companies and others, for the restriction of American petroleum imported into this country to a flash point of not lower than 100 degrees, on the plea (well supported by argument and experiment) that there is no assurance of safety to the user at any lower mark. Scotch burning oil is never sold with a lower flash-point and if the American article were restricted to the same, the increased refining necessary to expel the naphtha which causes the low flash-point would raise the price sufficiently to confer a great boon upon the Scotch industry. Even an advance of so little as one halfpenny a gallon would be a material benefit, without appreciably affecting the pocket of the consumer, and in this direction some relief is looked for, the matter meanwhile being in the hands of a small committee of the Scottish section of the Society of Chemical Industry.

Throughout the year the fall of share values on the Exchanges have been truly disastrous, and it may be said that, within a few years, between two and three millions of invested money has been totally lost. Leaving out two, or at the most three, of the companies, oil shares in the market are practically valueless. Young's Paraffin and Mineral Oil Company, the oldest, and but lately reputed the strongest, during 1892 paid 5 per cent. on ordinary stock, and the year before 9, and yet, on rumours of the remaining 20 shillings of capital being likely to be called up towards the close of the year, holders were next door to parting with their shares for nothing. Since the opening of 1893 this 20 shillings has been called, and although there is now no further risk that way, there have been eager sellers at less than the amount of the call. During 1892 only two other companies paid anything, the Broxburn and the Pumpherson. And it has to be remembered, too, that since the middle of 1892 there has been some relief in rather cheaper costs of fuel and chemicals, and in two drops in workmen's wages.

The following table shows the tremendous shrinkage which has taken place in about two years:—

Companies.	Value, September, 1890.	Price got at last transaction, January 14, 1893.
	£ s. d.	£ s. d.
Broxburn	17 5 0	7 15 0
" (Preference)	11 0 0	10 0 0
Burntisland	4 10 0	Dead.
Clippens	6 5 0	Dead.
Dalmeny	15 1 3	6 10 0
Hermard (1)	0 11 3	0 0 6
" (2)	0 6 0	0 1 0
Holmes (1)	4 2 6	0 10 0
" (2)	6 5 0	3 5 0
Linlithgow	2 10 0	0 6 0
Oakbank (1)	9 0 0	4 10 0
" (2)	4 10 0	0 10 0
Pumpherson	9 5 0	4 1 0
West Lothian	6 0 0	Dead.
Youngs	3 2 6	0 18 0

The above figures are from the published lists of the Glasgow Stock Exchange.

THE MANCHESTER ELECTRIC LIGHT INSTALLATION.

WE made reference in the early part of last year to the success of Messrs. Galloways, Limited, in securing the contract for making the engines and boilers to be used in obtaining the power required in connection with the installation of the electric light in Manchester. The work undertaken by this firm is now rapidly approaching to completion. The engines from which the power is to be derived (and which we had the pleasure of inspecting this week at the firm's Knott Mill works) consist of four distinct Compound Vertical Engines, each having high-pressure cylinder 17 inches diameter, low-pressure 34 inches diameter, with a stroke of three feet. The pistons from these cylinders work on to crank pins placed at each end of a crank shaft, which carries the fly-wheel acting as a pulley, being turned and crowned for receiving link belt, which transmits the power direct to the dynamo, and, as these dynamos are in close proximity to the engines, jockey pulleys are provided for the purpose of maintaining the requisite tension on the belt. As the engine cranks are at right angles, a receiver between the two cylinders is necessary, and both

cylinders, with this receiver, are steam jacketed, the steam for this jacket being derived from the boilers direct. As is well known, electric lighting requires extreme steadiness in running, in addition to which the speed requires to be varied in accordance with the power the engine is developing. The engines in question are specially adapted to meet these requirements, the variation in speed being effected by Galloway's Patent High Speed Parabolic Governor, specially arranged so that its sensitiveness and speed can be easily altered while the engine is running. The engines are intended to work at a pressure of 120 lbs. on the square inch and to develop 400 horse power each, when running at a piston speed of 500 feet per minute; they can be arranged to run faster if required, however.

The exhaust steam is condensed not by the ordinary jet or surface arrangement, but by Korting's Ejector Condensors, placed in close proximity to the engines. These ejectors are supplied from a tank placed over the boiler house, which will be charged from the canal by means of powerful centrifugal pumps worked by independent engines, the fall of the water condensing the steam, all of which is carried away without the necessity of an air pump.

The steam required by these engines will be furnished by six large boilers constructed by Galloways, Limited, at their Ardwick boiler works. These boilers are 30 feet by 8 feet, made of steel, to work at 125 lbs. pressure, and are very completely fitted throughout, the fittings including Vicars's Mechanical Stokers. A very unusual feature in the boiler installation is the duplicated arrangement of the entire ranges of steam and feed pipes, in fact, the duplication is so complete that under no possible combination of circumstances can the whole of the boilers or engines be rendered inoperative. The steam pipes are of large size, 18 inches diameter, and are all of wrought steel, welded with strips double riveted over the weld. These are quite a departure in pipe construction, and are so unusual that they were recently illustrated in the *Engineer*.

SCIENCE IN 1892.

CHEMISTRY and physics have become intimate allies of one of the most interesting and suggestive departments of astronomy. Chemistry itself, as a science, has reached almost unmanageable dimensions. It has a terminology and a symbolism of its own, into which certain anomalies have been creeping that have produced confusion and misunderstanding. This led, says the *Times*, to an International Conference of Chemists, held at Geneva at Easter, at which certain precise rules were adopted as to the methods to be followed in giving names to new combinations. In other respects this conference, it is believed, will have beneficial results on the vast army of chemical workers all the world over. Noteworthy, also, was the address on Progress in Chemistry and Physics by Professor Ostwald, one of the most eminent of continental chemists, on recent advances in physics and chemistry. Professor Ostwald has also been continuing his researches and discussions on the theory of solutions. A very beautiful instance of chemical research during the year has been that by Professor Thorpe and Mr. Sutton, resulting in the discovery of the real nature of phosphorous oxide. Equally remarkable was Deslandres' account of his discovery of 14 lines in hydrogen, rendered possible by spectral observations of the sun and stars, resulting in the detection of a striking analogy between these lines and certain harmonies of sound. Professor H. E. Armstrong's paper on some of the results of his researches into the origin of colour must also be mentioned.

Physics is the inadequate name given to a vast and varied department of science. It includes all the multifarious phenomena connected with electricity and magnetism, which in their theories and applications engage quite as many workers as chemistry itself. We can only say that during the year there has been no slackening in the progress made in both directions. One of the most wonderful demonstrations during the year was Mr. Nikola Tesla's manipulation of powerful currents of electricity at the Royal Institution and the Society of Electrical Engineers. With Jovian recklessness he played with the artificial lightning which he generated, and made himself the medium of currents of such power as, according to accepted theory, ought to have killed a hundred men. This he could do, we understand, because he had discovered how to convert "shocks" into a practically continuous stream of successive oscillations. He holds that a phosphorescent glow "is the light of the future, and hints at artificial aurora shedding their rays from the summits of towers of enormous height. A paper of considerable importance was given to the Physical Society by Professor Fitzgerald on electromagnetic vibrations. Both at the Royal Society and at the Royal Institution, Professor Oliver Lodge, one of our most original and daring investigators, described his delicate researches as to the connection between ether and matter and the motion of ether near the

earth, making us wonder more and more what this intangible something can be. The Electrical Exhibition at the Crystal Palace was a noteworthy event of the year.

Tardy justice has been done to an investigator who was born before his time, by the publication by the Royal Society of Waterston's Theory of Gases, read in abstract to the society in December, 1845, but pronounced by the referee to whose judgment it was submitted to be "nothing but nonsense, unfit even for reading at the society." Lord Rayleigh in his preface to the paper points out that Waterston had indicated some of the most recently accepted theories as to gases. Another service done by the Royal Society during the year has been the publication of the report of its Committee on Colour Vision, the practical recommendations of which it is to be hoped will receive attention.

Mr. John Aitken has been continuing his researches on the subject of Dust Particles in the Atmosphere. One conclusion reached by Mr. Aitken is that a great amount of dust increases the day temperature and checks the fall of temperature at night. M. Mascart has been investigating the mass of the atmosphere, and finds it one-sixth greater than is usually calculated. Dr. Assmann, a German physicist, has been observing temperature at a considerable height in the atmosphere from a captive balloon, and in winter found that the temperature aloft was higher than on the ground, which may be an encouragement to Dr. Nansen to make use of captive balloons in his proposed Polar expedition. Some new ideas on the general circulation of the atmosphere were brought before the Paris Academy by Dr. Pernter.

Professor Roberts-Austen brought before the Institution of Civil Engineers during the year a photographic method of recording high temperatures, devised by himself, which is being adopted in the larger iron and steel works in this country. Results of singular scientific interest have already been obtained by its aid, and it is evident that the introduction of accurate physical measurement in connection with metallurgy promises to be of great industrial importance.

THE GAS SUPPLY OF LONDON.

ACCORDING to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations for the week ending January 7th, 1893, show seven deficiencies in illuminating power, five against the South Metropolitan Gas Co., and two against the Gas Light and Coke Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.27	12.24	0.16	Nil.
South Metropolitan Gas Co.	6	16.30	12.58	0.4	Nil.
Commercial Gas Co.	2	16.45	10.35	0.0	Nil.

For the week ending Jan. 14th the results were much better, there being only one return and that against the Gas Light and Coke Co. The results calculated as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.38	12.57	0.19	Nil.
South Metropolitan Gas Co.	6	16.33	12.76	0.64	Nil.
Commercial Gas Co.	2	16.45	7.8	0	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

SOCIETY OF CHEMICAL INDUSTRY (*London Section*).—The next meeting of this section will be held at the rooms of the Chemical Society, Burlington House, on Feb. 6th, when papers will be read on (1) "Manufacture of Nitric Acid," by Mr. Oscar Guttman. (2) "A New Form of Laboratory Filter Press," by Mr. C. C. Hutchinson.

Official Memoranda.

(From the Board of Trade Journal.)

NEW CUSTOMS TARIFF OF QUEENSLAND.

Articles.		Rates of duty now leviable.		
		£	s.	d.
Candles	per lb.	0	0	4
Castor oil (in bulk)	„ gallon	0	1	0
Cement	„ barrel	0	2	0
Coal	„ ton	0	2	0
Colza oil (in bulk)	„ gallon	0	1	0
Glucose	„ cwt.	0	10	0
Oils, mineral and others (except perfumed oils) and turpentine..	„ gallon	0	0	6
Resin	„ cwt.	0	1	0
Saltpetre	„ „	0	4	0
Soap	„ „	0	10	0
Soda, bicarbonate	„ „	0	1	0
„ caustic	„ „	0	1	6
„ crystals	„ „	0	2	0
Stearine	per reputed lb.	0	0	1½
Tallow	„	0	0	1½

Sulphur and nitrate of soda are leviable with a duty of 15 per cent. *ad valorem*. A duty of 5 per cent. *ad valorem* is levied upon the following:—

Asbestos (unmanufactured)	Alum
Acetate of soda	Arsenic
Boracic acid	Ammonia
Benzoic „	Bluestone
Carbolic „	Borax
Citric „	Cream of tartar
Oxalic „	Glycerine
Phosphoric acid	Nut galls
Salicylic „	Pearl ash
Tannic „	Phosphorus
Tartaric „	Sulphate of quinine
Tar, Stockholm	Asphalt
The following are taken from the list of exemptions:—	
Chloride of lime	Evaporators of waste liquors
Copperas	Safety matches
Dynamite	Salt
Guttapercha	Soda ash
Shellac	Sulphate of ammonia
Iron ore	Zinc

A duty of 25 per cent. *ad valorem* is levied on all goods, etc., imported into Queensland not mentioned in the schedules from which the foregoing are abstracted.

MINERAL PRODUCTS OF CANADA.

The following particulars respecting the mineral production of Canada are extracted from the Statistical Year Book of that colony:—

There is hardly a mineral of value, with the exception of tin, that is not known to exist in greater or lesser quantity in some part of the Dominion, but its mineral wealth is to all intents at present an unknown quantity, many parts of the country where minerals are known to exist being as yet practically unexplored. Some idea, however, of the rich and varied resources of the country may be gathered from the following classified list of the economic minerals of Canada as arranged in the Geological Museum at Ottawa, where specimens of all of them are exhibited:—

Metals and their ores.—Native iron, magnetic iron ore, iron sand, hematite, ilmenite or titaniferous iron ore, limonite (including bog iron ore), spathic iron ore, clay, ironstone, native copper, sulphides of copper, sulphide of zinc, sulphide of lead or galena, native silver and ores of silver, gold, platinum, sulphide of antimony, oxysulphide of antimony, and sulphide of bismuth.

Materials used in the production of heat and light.—Anthracite, bituminous coal, lignite or brown coal, bituminous shale, petroleum, peat.

Materials applicable to certain chemical manufactures and their products.—Iron pyrites, sulphuric acid, etc., pyrrhotine or magnetic iron pyrites, apatite or phosphate of lime, magnesite or carbonate of magnesia, calcite or carbonate of lime, chromic iron, oxides of manganese.

Mineral manures.—Gypsum, shell-marl.

Mineral pigments and detergents.—Iron ochres, etc., barytes or heavy spar, soap clay.

Salt, brines, and mineral waters.—Salt and brine, mineral waters.

Minerals applicable to common and decorative construction.—Limestones, dolomites, sandstones, granite and syenite, gneiss, labradorite rock, marbles (limestones), serpentines, breccias slates, flagstones, common lime, hydraulic lime, and brick clays.

Refractory materials, pottery clays, and pottery.—Plumbago or graphite, soapstone, potstone, mica rock, mica asbestos, fireclays, sandstone (refractory), and pottery clay.

Materials for grinding and polishing.—Stone for manufacturing whetstones, hones, bathbrick, Tripoli, grindstones, and millstones.

Minerals applicable to the fine arts and jewellery.—Lithographic stone, porphyrites, labradorite, albite, pirthite, and jasper.

Miscellaneous.—Sandstone for glass-making, carbonaceous, shale and artificial stone.

The principal drawbacks to mining development hitherto have been want of capital and the fact that a number of the enterprises that have been started have been purely of a speculative character which has thrown suspicion on genuine undertakings, and driven investors to place their funds elsewhere; but as the explorations of the Government Geological Society are making better known the extent and locality of minerals, and the fiscal policy of the Government is calculated to stimulate production, public attention is becoming more attracted to the mining resources.

A large number of members of the British Iron and Steel Association visited the United States in the Autumn of 1890, and many of them inspected the copper and nickel mines of Sudbury, and expressed themselves as being astonished at the evidence of great mineral wealth they met with. It is hoped that as a means of calling attention to the mineral resources of this country their visit will have a beneficial result.

Nova Scotia, British Columbia, Quebec, the north and west portions of Ontario and some parts of the North-West Territories are essentially the mining districts of the Dominion. Coal has been found in Manitoba, but no metalliferous ores have at present been discovered there, and though a number of minerals and metals are known to exist in New Brunswick, none of them have yet been found in any large quantities, and mining is only carried on to a small extent. There is no mining in Prince Edward Island.

The total mineral production of Canada in 1891 was valued at 20,368,901 dols. as compared with 19,331,688 dols. in 1890.

It would appear that mineral production in Canada is at present not increasing to any great extent, the value having remained practically stationary for the last three years, though this may be in a large measure due to sluggish markets and a consequently reduced demand for some of the principal articles.

The total value of the exports of minerals and mineral products mined or manufactured in Canada in 1890 was 5,807,541 dols., being 769,392 dols. more than in 1889.

In 1890, 81 per cent. of the exports went to the United States, and 17 per cent. to the United Kingdom and British possessions, as compared with 84 per cent. and 13 per cent. respectively in 1889.

The total value of imports of minerals and products chiefly manufactured therefrom in 1890 was 24,472,327 dols., of which amount 8,154,504 dols. was for coal, and 8,473,741 dols. for iron and steel, the two forming 68 per cent. of the whole sum.

Copper constitutes one of the most important of the mineral treasures of the Dominion, and is destined to occupy a very important rank amongst its resources. Its ores are distributed over vast tracts of country in Ontario, in the eastern townships of Quebec, in Nova Scotia and British Columbia, and in New Brunswick. There have hitherto been no copper smelting works in operation in Canada, and consequently all the ores have been exported for treatment abroad, but smelting works have been established at Sudbury, in Ontario, in which neighbourhood what are perhaps the largest deposits of copper ore in the world have been recently discovered. Two furnaces are in operation and others are being built.

In 1883 the first discovery of a deposit of nickeliferous pyrrhotite was made while the Canadian Pacific Railway Company were making a cutting through a small hill near Sudbury, in the district of Algoma, Ontario, and since then, though the first discoveries were very much exaggerated, about 20 promising deposits have been discovered in the district, and there is no doubt that this ore is present in large quantities. The amount of fine nickel in the matte produced at and shipped from the Sudbury mines in 1890 was 1,435,742 lbs., which at 65 cents per pound was worth 933,232 dols.

Petroleum has been found in Quebec, Nova Scotia, and New Brunswick, and particularly in the North-West Territories, where it seems certain there is an immense unexplored oil region; but it is in the county of Lambton, Ontario, whence most of the oil has been and is obtained; oil springs and petrolea in the township of Enniskillen being the largest oil-producing districts, the oil being obtained at a depth of from 370 to 500 feet. The first flowing well was struck on the 19th February, 1862, and before October in the same year there were no less than 35 flowing wells. As there was no accommodation for the storage of this enormous flow there was a frightful amount of waste, and it is calculated by one authority that between the dates mentioned no less

than five million barrels of oil floated off upon the water of a neighbouring creek. Means were taken after a time to stop this waste, and though no exact particulars are available, the annual output for some years has been about 600,000 barrels.

There were 12 refineries in operation in Ontario in 1890, employing about 250 men, and it was estimated that there were 3,500 wells pumped.

Exact figures of the total production of oil cannot be obtained, but as far as returns are available, it would appear that in 1890 the amount approximated very closely to 695,000 barrels of a calculated value of \$20,100 dols., while the value of the production of the 12 refineries was 1,638,420 dols.

The mineral which is produced in Canada under the head of asbestos is in reality a form of serpentine called *crystolite*, and is found in certain portions of the serpentine rocks of the eastern township of Quebec, as well as in some parts of Ottawa county, Quebec.

Though its existence was known for a number of years, no attempt to work the mineral was made until 1878, when 50 tons were taken out, since which time the industry has developed rapidly, and in 1890, 9,860 tons were taken out, the value of which was 1,260,240 dols. The mining is practically confined to two sections, one at Thetford and the other at Black Lake, the two sections being about four miles apart. The mineral, while not suitable for millboard and steam-packing, answers admirably for cements, paints, &c.

THE DYEING AND BLEACHING INDUSTRIES IN U.S.A.

Dyers and finishers explain that the decrease in value of the work done, as reported for 1890, is due to the fact that competition and improved processes have reduced their charges for work at least 25 per cent. The market cost of chemicals and dyestuffs remains about the same, but it is not necessary to use as much of these articles now, in a given quantity of goods, as was employed at the census period of 1880. This is particularly noticeable in the manufactures of silk, as by the introduction of machinery operated by power it is now possible to do work that ten years ago could only be performed by hand. Therefore, the decrease in the value of work done is not due to an increase in the number of manufacturers of textiles doing their own dyeing and finishing, since the proportion of such manufacturers in 1890 is about the same as in 1880.

At the census of 1880 the cost of materials and wages was 20,138,659 dollars to give a product of 32,297,420 dols., while at the census of 1890 the cost of these two principal items was 22,079,093 dols. to give a product of 28,900,560 dols. Thus materials and wages cost 62.35 per cent. of the value of work done at the former census year, while at the present census the percentage has risen to 76.40. The work done, both in quantity and value, is principally in dyeing, bleaching, and printing cotton yarns and piece goods. The amount of 28,900,560 dols. given as value of product of dyehouses, bleacheries, and print works, does not show the full value added to textile manufacturers by these processes. In the woollen mills chemicals and dyestuffs costing 6,453,665 dols. were used. From the returns made by manufacturers it is found that the cost of these materials is 36.18 per cent. of the added value. Applying this basis of compilation it would appear that the added value of work done in woollen mills is 17,837,659 dols. Chemicals and dyestuffs costing 4,266,773 dols. were used in cotton mills. The cost of these chemicals and dyestuffs, according to the returns of establishments dyeing, printing, and bleaching cotton goods, is 26.61 per cent. of the value added by these processes, which would make the value of the work done 16,034,472 dols. In silk mills the chemicals and dyestuffs cost 37.21 per cent. of the value added by their use. The cost of these materials is 558,532 dols., and the value of the work done, which means the cost of the dyestuffs plus the value added by their use is 1,501,027 dols. The value of this work done in mills engaged in textile manufactures is therefore, approximately, as follows:—Cotton, 16,034,472 dols.; woollen, 17,837,659 dols.; silk, 1,501,027 dols.; total, 35,373,158 dols. Adding this total to the value of work done in establishments devoted exclusively to dyeing and finishing textiles, the gross value added by dyeing, bleaching, and printing is shown to be 64,273,718 dols.

THE INDUSTRIAL PRODUCTS OF BOSNIA.

Plums form the basis of three native industries: cooked, they give a very rich marmalade; distilled, they supply *slivovits*; dried, they become the prune known throughout the whole world. The superior quality is known as *Sultana*, the common quality bearing the name of *Bosnia*. In 1890 the export reached 17,000,000 kilos.

Some experiments in the growing of sugar beets have been made with great success in the north of Bosnia (yielding from 15 to 16 per cent. of sugar), and works have been erected.

Forests cover more than half the area of the country; the chief tree is the red beech; in Northern Bosnia an oak of very good quality is met with; Central Bosnia is very rich in forests of excellent pine trees.

Between Pribinitz and Doboj 15,000,000 oak staves are annually sent to Bordeaux. The branches and other waste are used in the tanning factories of Slavonia.

Bosnia largely supplies the butt-ends of muskets for the army and quantities of cornel-wood for the making of canes and umbrellas. Finally, the Bosnian forests supply leather-dressers with large quantities of sumac.

Bosnia and Herzegovina are rich in minerals. First may be mentioned coal, which is found in the environs of Bihac, Frieder, Banjaluka, Varcav-Vakuf, Kotor, Travnik, Livno, Mostar, Stolar, Gradac, Konjica, Visako, Zenica, Kladanj, Zvornik, and Touzla. The mines of Touzla daily produce 200 tons of lignite; a vein of 18 metres thickness is worked at the level of the soil.

The iron mines are found in the environs of Vares, Fojnica, Kresna, and Visoko. In the Vares mines the ore exists in almost inexhaustible quantities; the proportion of oxide of iron varies from 71 to 85 per cent., with 2 to 6 per cent. of oxide of manganese, and 0.12 to 0.15 per cent. of phosphorus. The Vares blast furnace produces 50,000 tons of iron per annum.

Copper ores are found at Siniakovo (Jaice); those of manganese are near Banjaluka and at Cevlionovic (near Sarajevo). A rich chromium mine is worked at Dubostica, near Vares; the ore gives 56 per cent. of chromium oxide, and from 1,500 to 2,000 tons are produced yearly. Another chromium mine is found at Borya, near Visoko; ores of antimony and mercury are found in the environs of Fojnica, and of argentiferous lead ore at Srebrenica.

The presence of 32 springs of mineral waters has been ascertained, of which four are ferruginous water, eleven lime water, three arsenical water, one iodic water, and two sulphurous water. The Touzla springs contain from 17 to 25 per cent. of sea salt; those of Srebrenica (arsenical waters) are exported in gradually-increasing quantities. The thermal station of Ildjé (near Sarajevo) is already much visited, and the use of the gaseous water of Kiseljak is much extended.

The chief factories of the country are at the height of modern progress, notably the alcohol factory at Touzla, which daily produces 50 hectolitres of alcohol and 1,500 kilogrammes of dried malt; the beet drying factory (awaiting the proposed sugar factory) at Doboj; the prune-preparing factory at Breka; the forest working of Pribinitz; the tobacco factories at Sarajevo, Mostar, and Banjaluka; the paper-works at Zenica, the brick-making factory at Touzla, the carpet factory and the Government factory for textile industries at Livno and Foca; the coarse cloths and small wares factory at Sarajevo; the Dolina-Touzla and Gornia-Touzla salines, which produce from 70,000 to 80,000 metric quintals of salt; finally, the metallurgical establishments referred to above.

THE MINERALS OF VENEZUELA.

Petroleum is abundant in the district of Maracaibo, and some of the deposits are not only natural flowing wells, but spout up with a constant force. Between the rivers Zulia and Santa Ana, the territory is rich both in petroleum and asphalt, and near the Rio de Oro there is a curious phenomenon consisting of a horizontal cave which constantly ejects, in the form of large globules, a species of thick bitumen. These globules, in coming into contact with the outer air at the mouth of the cave, explode with a loud report, and the bitumen forming a slow current falls finally into a large deposit of the same substance near the river bank. At a distance of about five miles from the confluence of the rivers Yara and Jardinete, there is a mound or sand of from 25 to 30 feet in height and with an area of about 15,000 square feet. On its surface are a multitude of cylindrical holes of various dimensions which eject with violence streams of petroleum. It is stated upon reliable authority that from one only of these streams a receptacle of the capacity of four gallons was filled in one minute, that is at the rate of 5,760 gallons in 24 hours.

It is believed that beds of anthracite coal also exist on the east coast of the Lake Maracaibo. The opinion is held that a careful exploration of the territory lying between the west coast of Lake Maracaibo and the Columbian frontier would result in the discovery of gold bearing quartz in the mountain range which separates the two Republics, and of alluvial gold in the rivers which have their head waters in that region. Near the sources of the river Limon a territory which very few persons other than the Goajira Indians have penetrated, specimens of quartz containing gold have been found, and samples have been discovered which would have easily assayed six or eight ounces to the ton. Gold has also been found in some of the rivers, but as no organised investigation has ever been made, it is impossible to do more than offer an opinion based upon very imperfect evidence.

PRODUCTION OF KAURI-GUM IN NEW ZEALAND.

Thirty years ago the Maoris were the only people who searched for this gum. At the present time there are about 4,000 whites and 1,000 Maoris engaged at the work. The best qualities are obtained from undulating open fern land north of Auckland, but a good deal of gum

of inferior quality is obtained from the Kauri-trees in the forests, and from the bottom of swamps. The ordinary method of searching for the gum is by first feeling for it a little below the surface with a steel-pointed piece of iron about $\frac{1}{2}$ in. in diameter and 4 ft. long, called a "gum-spear," and then digging it out with an ordinary spade. A skilful and industrious digger can earn as much as £3. to £4. per week at the work, and even children can make a few shillings a day at it. As, however, the gum-fields offer a refuge for all sorts and conditions of men, many who are old and infirm resort to them, and so the average earnings of those engaged in the work is reduced to £1. 15s. to £2. per week.

The gum is used principally in the manufacture of varnish, but it is found useful for many other purposes, such as dressing "glazed" calicoes, &c. The best quality, which is scarce, is worth as much as £8. to £10. per cwt., while the poorest quality is worth only about £1. per cwt. in London.

The following are the quantities and values of the exports in ten-year periods since 1853.—

Year.	Tons.	Pounds.
1853	829	15,971
1861	856	9,888
1871	5,054	167,958
1881	5,460	253,778
1891	8,388	437,056

This last is the highest value for any year. In 1888 the number of tons was the greatest, 8,482, but the value, £380,933. was less than last year's.

Our Book Shelf.

PAINTERS' COLOURS, OILS, AND VARNISHES.—By George H. Hurst. F.C.S. 450 pp. Index. Illustrated. London: Charles Griffin and Co., 1892.

This is a work mainly for the use of manufacturers of paints and colours. The various pigments are classified under general headings, such as white, red, green, blue pigments, &c. The colours included under these headings are described in full, both in regard to their composition and the various methods by which they are prepared. The principles of their manufacture are also clearly outlined, and the assaying of each individual colour described.

Chapters II. and IX., which treat on white lead and lakes respectively, are two most complete and interesting chapters, which are followed by a chapter on the "Assay and Analysis of Pigments," this chapter forming one of the chief features of the book. Chapter XII. is devoted to Paint Machinery, and is well illustrated. This chapter, together with the preceding one, are perhaps the two most original in the work, and are in a way unique. Further on we find a comprehensive chapter on "Paint Vehicles," a subject which is not uncommonly afforded but scanty notice in a good many textbooks dealing with oils and colours. The book ends with a description of Varnishes and their manufacture, to which is appended a collection of recipes culled from reliable sources. In the present day scientific methods are gradually supplanting the old "rule of thumb," and the paint and colour trade is one in which a change in this direction is greatly needed. This book is designed to satisfy this need, and in it the manufacturer of colours, &c., has a thoroughly practical work of a technical rather than a theoretical nature, constituting, we believe, the only English work that satisfactorily treats of the manufacture of oils, colours, and pigments.

EXPERIMENTAL INVESTIGATIONS UPON THE PURIFICATION OF SEWAGE AND WATER. Part II. Made by the Massachusetts State Board of Health. 881 pp. Four plates. Boston: Wright and Potter Printing Co., 1890.

This voluminous work gives the results of an extensive series of experiments made by the Massachusetts State Board of Health upon the purification of Sewage by filtration and chemical precipitation, and upon the intermittent filtration of water. A variety of precipitants were employed in making trials of precipitation processes, while an enormous number of experiments were made in connection with filtration and its influence on nitrification. The report of the chemical work of the Lawrence Experiment Station upon the process of nitrification, is of particular interest, and refers to the action of alkalies, acids and salts upon nitrification, and the nitrifying capacity of sand filters. There is also a report by Allen Hazen, Chemist to the Station, on the precipitation of sewage. The experiments described in this report were made in a tank holding about 700 gallons, and consequently the results obtained afford reliable figures. From these investigations the following conclusions have been deduced:—The lime process has little to recommend it. Precipitation by copperas has produced satisfactory

results. Ferric sulphate and alum are to be preferred to either of the aforementioned compounds, while, if anything, chief preference is to be given to ferric sulphate as a precipitant. The same process does not necessarily give equally good results with all kinds of sewage, and it is therefore impossible to say that one precipitant is universally better than another.

The remainder of the work consists of a report of the biological work carried on at the Lawrence Experiment Station, and also an account of some investigations upon nitrification and nitrifying organisms. The biological report is illustrated with four plates, consisting of about twelve species of bacilli in different stages of growth. An ably compiled index is appended. This volume contains a mass of information upon a question which has of late years become one of vital importance, and the comprehensive nature of the work apprises us in a striking fashion of our backwardness in regard to this subject.

THE VALUE OF LENTILS AS FOOD.

A CORRESPONDENT writing to the *Times*, recently, states that allowing 35 oz. of solid food per diem for an able man, enough lentils to furnish wholesome food for twelve months could be purchased for £2. In order to ascertain the nutritive constituents of lentils, the following analyses have been made by Dr. Bernard Dyer, official analyst to the London Corn Trade Association.

	Rough Egyptian Lentils (as Imported)	Split Lentils.	Lentil Flour.	Pea Flour.
Moisture	10.96	11.26	11.76	11.50
Oil	1.01	.97	1.33	1.56
*Albuminoids	25.25	26.31	25.87	27.12
Starch, Indigestible fibre &c.,	45.61	57.33	56.53	55.16
Indigestible woody fibre	7.01	1.53	1.80	1.80
†Mineral matter (ash)	10.16	2.60	2.71	2.86
	100.00	100.00	100.00	100.00
*Containing nitrogen	4.04	4.21	4.14	4.34
†Including sand	6.53	.16	.26	.26

Though people may not be disposed to live entirely on lentil soup, still seeing the high dietary value of this comestible, it is worthy of attention in these days of strikes and disputes, when many of those indirectly affected have to accept a state of enforced idleness.

Correspondence.

*. * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

E. C. C.—On Feb. 4th proximo.

C. L. AND CO.—We shall be pleased to forward them as soon as we hear further from you.

A. C. F.—We thank you for your remarks of appreciation.

F. DE P. C. (Alsace).—You will find it in the back numbers of the *Journal*.

G. LD.—We are obliged to you for your invitation.

J. H.—Thanks for your explanation.

SILEA.—Yes it is largely worked in Skye.

NATRIUM.—No it is quite white. You can see a sample at the office of the *Journal* at any time.

NOTICES.

LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Trade Notes.

DIVIDEND OF THE GAS LIGHT AND COKE CO.—The Gas Light and Coke Company's dividend for the past half year will be at the rate of twelve per cent. per annum.

WATER IN IRISH BUTTER.—A case affecting the whole of the Irish butter trade with England was decided at Burnley this week. The Co-operative Society were summoned for selling butter containing 20 per cent. of water. Experts from Ireland were called to say that this moisture was necessary to preserve Irish butter. The magistrates considered that there was no fraud, and dismissed the case.

THE ELECTRICAL ESTIMATION OF ACIDITY.—Messrs. Collette and Demichel, in the Exposition d'Alcool, in the Champs de Mars, Paris, exhibited a useful instrument for measuring electrically the exact degree of acidity of any solution. Two plates are placed in a trough, through which acidulated malt is passed, connected to a delicate ampere-meter, and the readings on this instrument are a correct indication of a state of acidity. An alarm bell is arranged to ring at either of the extreme allowable limits.

THE GLASS TRADE OF BRUSSELS.—The glass trade has not been quite as satisfactory during the past year as it might have been, both as regards the number of orders and the prices that have ruled. There has been a smaller demand from England, while the American demand has not increased to any extent. The glass syndicate has been fairly successful in its operation. Primary materials, with the exception of sulphate of soda, have not varied much in price during the past year. The latter, however, has fallen from 45s. to 32s. 6d. per metrical ton.

FIRE AT AN AMERICAN COLLEGE.—The Cushing Academy was recently burned to the ground. The fire occurred in the night, and was caused by an explosion in the chemical laboratory of the establishment. As soon as the alarm was given in the dormitories a fearful panic ensued. Fortunately the 225 students were all saved without an accident, although the distance from the window was as much as forty feet. The cold, however, was intense, and the thinly-clad young men suffered severely from exposure. The loss occasioned by the fire is estimated at 120,000 dollars.

ELECTRIC TRACTION IN THE MIDLANDS.—The installation of the South Staffordshire Electric Tramway System at Walsall took place recently. Certain difficulties have attended the inauguration of what is the latest mode of traction, but this was to be expected. Although productive of considerable inconvenience the difficulties are not of an insuperable nature, and the steps taken to remove the same have already been attended with success. Making allowance for the severity of the weather, and the ignorance of the drivers in regard to the technicalities of running electric motors, there is little cause, we think, to apprehend any serious delay in getting the system into regular working order. The dynamos employed at the generating station are of the Elwell Parker type, and are three in number. The cars and motors have been made by the Electric Construction Corporation, Ltd., of Wolverhampton.

THE RAINFALL OF 1892.—There is a prevailing impression that the past year has been an exceptionally wet one. According to the observations of Mr. G. J. Symons, F. R. S., however, this impression is quite erroneous. As a matter of fact 1892 was an ordinary year, being neither excessively dry nor wet. Doubtless the fact of the greater part of the rain falling during the months of August, September, and October, and so interfering with the harvest and holidays, accounts for the public opinion that the year has been exceptionally wet. It must be remembered, however, that the earlier months of the year were dry, and hence on comparing the average rainfall of 1892 with the average of the nine years 1880 to 1889, taken at thirty-three typical stations in different parts of the U. K., only thirteen stations were above the average while 20 were below it. In England alone there were 5 over the average and 12 under. In Cumberland, which is considered to be the county where most rain falls, the increase in average fall, as compared with the average of the nine years just referred to is only 0.49 inches.

RATING MACHINERY.—Some year or two ago the Rating Authority of the Chesterfield Union were induced to attempt to enforce the theories as to the Rating of Machinery, and as a result the Staveley, Cross, and the Sheepbridge Coal and Iron Companies, and many large iron works and factories in the district, had their assessments increased in some cases more than 100 per cent. Nearly the whole of the firms affected being members of the National Society for Exemption of Machinery from Rating, that Association undertook protection of their interests, and on Thursday last week, Mr. Humphreys Davies of London, the valuer to the Association, appeared before the Assessment Committee in support of the objections made by Staveley and Clay Cross Companies. After a long discussion, promises were arranged by which the new valuation was reduced by 20 per cent. in the former case and to the amount of the Assessment in the latter. The other appeals still remain to be decided.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The benzol market is scarcely so strong as it was a week ago 2s. 1d. to 2s. 2d. is all that could be realised, perhaps 2s. only for forced sales. The market value for 50/90's is a penny or two below last week.

The sulphate of ammonia market is still increasing in firmness, £10. 17s. 6d. may be said to be the price at all ports. The event of the next few days should be carefully watched by producers.

THE METAL MARKETS.

LONDON, TUESDAY.—Pig iron quiet. Scotch warrants at 44s. cash. Middlesbrough 35s. 3d. cash, and Hematite 45s. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s close at £45. 11s. 3d. to £45. 18s. 9d. cash, and £46. 1s. 3d. to £46. 8s. three months. Tin quiet. Straits closed at £92. 1s. to £92. 6d. cash, and £93. to £93. 10s. three months. Australian, £93. cash. English ingots, £96. 10s. Lead firm: Spanish, £9. 17d. English £10. to £10. 2s. 6d. Silesian spelter: Ordinary, Quicksilver: First hands, £6. 5s., second hands, £6. 4s. *C. shares*: Cape, 1½ to 1¾. Copiapo, 2½ to 2¾. Libiola 3½ to 4. Mason and Barry, 2½ to 2¾; Rio Tinto, 5½ to 5¾; Tharsis to 4¾; Namaqua, ¾ to 1; Panulcillo ¼ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Enquiries are being for supplies of pigs for the second half of the current quarter. S quote Derbyshire forge 43s. to 45s.; No. 3 foundry, 50s.; and N 55s.; Northampton, 41s. upwards, and Lincoln 45s. 6d. to 47. Cumberland hematites are—No. 1 62s. 6d., No. 3 60s. 6d. delivered. Finished iron steady. Shipping qualities of hoop £6. 5s.; steel hoops, £7.

GLASGOW, WEDNESDAY.—Market quiet but firm. Scotch at 43s. 9½d., 43s. 10d., 43s. 9¼d. and 44s. 1½d. cash; closing buyers at 44s. cash, and one month; sellers ask 3d. more. Middlesbrough closes with buyers at 35s. 3d. cash; sellers ask 35s. Hematite closes with buyers at 45s. 9d. cash; sellers ask 46s. 1½d.

MISCELLANEOUS CHEMICAL MARKET.

The position, generally, in the alkali trade in regard to price without any material change. Soda ash is ruling from 1½d. to per degree for ordinary qualities of Leblanc makes, and an alkali, 58%, is 1½d. f.o.b. makers' works. For caustic soda there is moderate demand, and prices are unchanged, viz.: F.o.b. Tyne £11.; f.o.b. Liverpool 74%, £10. 10s.; 70%, £9. 10s.; 60% 10s.; cream, 60%, £8. 5s., 10 ton lots and upwards. Ble powder steady at £7. 10s. f.o.b. makers' works. Prices of chlor potash and soda are maintained, and there is good enquiry for same. Recovered sulphur, £4. 5s. in bulk at makers' works, for delivery, and there is better enquiry and more business done for forward delivery. For vitriol and muriatic acid the demand is steady and prices are, generally, firm. Sulphate of copper remains steady at £16. f.o.b. In green copperas stocks are in excess of requirements and prices have a lower tendency. Brown and grey acetates are rather quiet, both for spot and forward delivery, but there

material change in value. For acetate of soda there is a fair demand. White sugar of lead is firm in price, and meets with ready sale. Nitrate of lead still without improvement in price. For white arsenic there is a strong demand, both for home and export trade, and prices are higher, £12. 15s. to £13., Garston, etc. Potash, caustic and carbonate are selling freely, and prices remain firm. Carbolic crystals have risen during the past week, nearest price to-day being 8d. per lb. for 39/40°. Cresylic acid 1s. 10d. to 2s. per gallon. Business is brisk in all grades of carbolic acid, and considerable business has been done for delivery over next six months. Prussiate of potash is rather weaker at 9½d. Bichromates are steadily maintained at convention prices. Oxalic acid 3d. to 3½d. per lb. Aniline oil and aniline salt are advanced in price. Sulphocyanides quiet and without improvement in value. For chloride of zinc the demand has considerably fallen off of late, owing to lessened consumption.

REPORT ON MANURE MATERIAL.

There continues to be great activity in the market, especially for ammoniacal material, and at prices still tending upwards.

Florida phosphate rock, 75/80% offers at 8d. per unit, in cargoes, c.i.f. to U.K., but there will probably still be sellers at a fraction under this price. The nearest value of hot-air-dried Peace River rock is 7d. per unit, in cargoes, c.i.f. to U.K., and of hot-air-dried South Carolina River rock, 6½d. per unit. 70% Florida land pebble offers at 7d. per unit.

We do not hear of anything fresh in cargoes of River Plate bones, but £4. 2s. 6d. would no doubt be obtainable for anything of handy size. Crushed Kurrachee bones, for shipment, offer at £4. 2s. 6d. per ton, but so far do not find buyers at the price. £4. 5s. per ton now asked for Bombay bone meal, now afloat or for shipment; on spot, £4. 5s. to £4. 15s. according to quality required, for East India bone meal.

The market for nitrate of soda is very strong; on spot, 9s. 4½d. for ordinary quality and 9s. 6d. for refined are the lowest prices; due cargoes are worth 9s. 4½d. to 9s. 5½d. per cwt., according to size, ordinary test, and 9s. 6d. for refined. December shipments are worth about 9s. 4½d., and January shipments 9s. 1½d. to 9s. 10½d., according to sailing dates.

There continues to be good demand for dried blood at 10s. 6d. per unit, in bags, gross weights, delivered f.o.b. Liverpool.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil still rules very firm. There have been sales at £25. 15s. for Lagos, Accra Addah £24. 15s., and Salt-Pond £23. 15s. per ton all transit, but there is not much offering and spot business is quiet. Olive is steady with a fair enquiry. Neapolitan is quoted £39. to £42., Candia £36. 10s. Linseed: Liverpool makes are firmly held with a moderate business passing. Prices have hardened from 20s. 3d. to 20s. 6d. per cwt. in export casks, and still tend in sellers' favour. Cotton seed: Liverpool refined is very firm, and as anticipated last week prices have advanced considerably, 22s. 3d. having been asked during the week. To-day's quotation is 22s. per cwt., at which figure it is in fair request. Castor oil has been firm, and good seconds Calcutta are worth 23½d. at which price they are firmly held. First pressure French has a good enquiry from 25½d. to 26½d. Tallow has been brisk and considerable sales have been made during the week at 30s. to 31s. for North American, and 33s. per cwt. South. The market is firm and prices are not likely to decline. Resin, common, 3s. 10½d. with a fair demand. Other grades unaltered. Spirits of turpentine were quiet at the advance during the latter part of last week, but the demand has improved and sellers now ask 24s. to 24s. 3d. per cwt. spot. June to December delivery is spoken of at 24s. 9d. per cwt. Petroleum is steady and in good consumptive demand. Kerosene, 5d.; white light, 4½d. to 4¾d. at Liverpool. Snow-flake, 6d.; Russian refined, 4½d. to 4¾d. per gallon.

COLOURS.—Quiet. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet, Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

There is practically no alteration to report in our market this week. Manganese: Arrivals nil; prices firm, with continued tendency to advance. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) steady; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) in good demand; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals continue small; demand good, both for prompt and forward. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand, and prices are firm. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

The chemical trade is still quiet, with a limited amount of business; several Continental ports being closed owing to recent severe weather tending to further curtail shipments. Bleaching powder is firm at £7. 15s. per ton, transactions taking place daily at this figure. Prices of other products unaltered.

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 10s. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chloride of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 5s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; hydrate of barium, £10. per ton net.

South Durham salt unaltered at 10s. 1d. per ton f.o.b. Tees.

Coals: Market is very dull, and prices for best Northumbrian steam are still on a basis of 8s. 9d. to 8s. 10½d. per ton, free on board. Bunker coal flat, 6s. 6d. per ton being quoted, but good qualities may be bought below that figure. Gas coal is still being freely shipped, but price is not so strong, and varies from 6s. 3d. to 7s. 6d. per ton. Manufacturing coal in poor demand.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

So far as prices are concerned, there is no change to note in mineral oils and paraffins, but the air is full of rumour about the future of this sorely oppressed industry. Last week the works, etc., of the defunct Burntisland Oil Company were publicly exposed at the upset of £25,000. There was no bid; and now the creditors and shareholders revive their scheme for continuing, by themselves becoming purchasers, at a low price of course. This operation will be difficult of accomplishment, but probably an attempt will be made. It is also rumoured that

a scheme is on foot for the fusing of all the going companies into one, under a single managing staff—also a very difficult operation, which more than once has been talked of in past years.

Last week's forecast of the market in sulphate of ammonia has been so far verified. A day or two ago buyers of prompt procured business only with difficulty at £10. 5s., and probably it is not to be done anywhere at that to-day. The feeling is decidedly strong.

The general market—still with the exception of bleaching powder—is quite inactive, and the business passing is on the smallest scale. The severe weather on the Continent, and consequent blocking of ports, is held as mainly the cause. Nitrate of soda, like sulphate of ammonia, has advanced, that being about the only other change in market values.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash, £5. 5s. nett Tyne; refined alkali, £6. 10s. nett. Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 74°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 30s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bichromate of potash, 4¼d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3¼d. nett f.o.b. Glasgow); chlorate of potash, 8¼d., less 5% any port; nitrate of soda, 9s. 3d. to 9s. 4½d.; sulphate of ammonia £10. 5s. to £10. 7s. 6d. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¼d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5½d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. according to kind, at works, for Scotch buyers (English sales about ½d. lower); ditto (lubricating), 86s., £3. 10s., 88s., £4. 5s. to £5. 15s., and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 63,998 bags.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated Liverpool, January 18th, 1893, state:—

Chili charters for the first half of January are advised as 1,000 tons.

There was practically no difference in the statistical figures of copper at the end of 1892, as compared with end of 1891. The principal feature of 1892 has been the combination of producers in order to regulate the output of copper in accordance with the requirements for consumption, also the temporary closing down of the Anaconda Mine. So far all this has not produced the effect anticipated, but an advance in values is looked for by the trade and the general public. Furnace material of suitable produce and quality, particularly for forward delivery, commands high prices, as compared with the quotations for G.m.b.'s. refined and manufactured sorts of copper.

At this time last year we mentioned the total wreck of the P. S. N. Co.'s steamer, *John Elder*. We are now receiving some bar copper, bar tin, and silver ores, which have been salvaged from the wreck.

The sales of G.o.b.'s and G.m.b.'s since our last issue amount to about 6,000 tons, at a decline of 10s. to 12s. 6d. per ton, closing steady to-day at £45. 17s. 6d. cash and £46. 7s. 6d. three months.

According to Mr. Rothwell, Editor of *The New York Engineering and Mining Journal*, American copper statistics for 1892, 1891, and 1890, are as follows:—

	1892.	1891.	1890.
Production.....	149,738	128,402	118,267
Consumption.....	118,472	89,679	84,635
Exports.....	40,195	51,250	17,857
Stocks, 31st December ..	25,000	33,929	45,089

The Canadian Copper Company, of Cleveland, Ohio, producers of copper and nickel, have cabled an emphatic denial to a report that they had been obliged to close their works by order of the court. The report of their failure they state is utterly false.

The total stocks in Liverpool, Swansea, London, and Havre show an increase of 710 tons for the fortnight. The stocks include about 4,500 tons of copper sold, but not yet delivered to smelters. The visible supply shows an increase of 337 tons for the fortnight. The total deliveries for the fortnight are 3,705 tons. The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 1,437 tons, against 1,667 tons on the 4th inst. The delivery in Liverpool and Swansea was 230 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts are steady. Quotations being: Tough cake, £49. to £49. 10s.; best select, £50. to £51.; Indian sheets, £53. 10s. to £54.; strong sheets, £59., and yellow metal sheets, 4½d. to 5½d. per lb. The highest point touched last year for

Chili bars was £48. in November, and the lowest £43. 7s. 6d. in February. Further fluctuations will be seen in our figures below. The following are the averages for the different years of actual sales, with the exception of 1880, 1890, 1891, and 1892, which is the average of the official quotations:—1892, £45. 12s. 6½d.; 1891, £51. 9s. 8¼d.; 1890, £54. 5s. 6d.; 1889, £49. 10s. 5d.; 1888, £81. 17s. 9d.; 1887, £43. 16s. 11d.; 1886, £40. 9s. 3d.; 1885, £44. 0s. 10d.; 1884, £54. 9s. 1d.; 1883, £63. 5s. 10d.

The sales of furnace material only comprise—At Liverpool: 18 tons San Miguel precipitate (2nds), at 9s. 3d.; 10 tons Cuban precipitate, at 9s. 4½d.; 6 tons Aljustrel precipitate, at 9s. 4½d.; 28 tons Argentiferous Chili regulus and 150 tons Argentiferous Montana Matte, on private terms; 300 tons Chili regulus, to arrive, at 9s. 7½d.; 140 tons Brazilian ore, at 8s. 9d.; and 9 tons Aljustrel copper ore, at 8s. 6d. per unit. At Swansea: 440 tons Chili regulus, at 9s. 7½d. per unit.

New Companies.

Victor Stone Co., Ltd.—CAPITAL £2,000. in £5. shares. This company has been formed to carry on the business of cement work and artificial stone manufacturers.

Grimsby and District New Hide, Skin, and Fat Market, Tanning and Soap Boiling Co., Ltd.—CAPITAL £4,000. in shares of £5. each. The object of this company is to trade as fellmongers, soap boilers and tallow chandlers.

New Oil Mills Co., Ltd.—CAPITAL £13,000. in £1. shares. This company has been formed with a view to trading as refiners and purifiers of fats, grease, oils, and similar substances. The subscribers to the memorandum of association are: A. Booke, Stratford, chemical manufacturer; F. G. A. Roberts, Stratford, chemical manufacturer; R. Stewart, Stratford, chemist; A. E. Tonge, Ilford, traveller; C. C. Ford, Walthamstow, accountant; L. W. Marony, West Ham, accountant; A. F. Kempin, Leytonstone, clerk.

Hirst, Brooke and Hirst, Ltd.—CAPITAL £40,000. in shares of £5. each. This company has been formed to acquire and carry on the business formerly prosecuted by Messrs. Hirst, Brooke and Hirst, at Leeds, and to trade as wholesale drysalters, chemists and druggists, and dealers in oils, paints and pigments. The subscribers to the memorandum of association are: J. A. Hirst, Leeds, manufacturing chemist; B. Hirst, Leeds, manufacturing chemist; C. A. Hirst, Leeds, manufacturing chemist; W. Warren, Leeds, solicitor; W. J. Warren, Leeds, solicitor; C. E. Warren, Leeds, solicitor's clerk; J. A. Shiner, Leeds, solicitor.

Patent Syndicate Lighting Oil Extractor Co., Ltd.—CAPITAL £15,000. in shares of £10 each. This company has been formed to purchase and acquire patents for extracting and manufacturing oil from oleaginous compounds and waste products, and to manufacture chemicals, sulphur, etc. The subscribers to the memorandum of association are: L. H. Bernes, Brighton, journalist; J. Singer, Keighley, consulting chemist; H. A. A. Dombrain, Keighley, engineer; J. W. Cockerham, Bingley, retired woollen merchant; C. Briggs, Bradford, retired worsted manufacturer; A. Holmes, Keighley, retired wool comber; J. L. Morley, Bradford, engineer.

Wandsworth Chemical Works, Ltd.—CAPITAL £5,000. in £5. shares. This company has been formed to manufacture and deal in chemical produce, manures and agricultural implements, etc. The subscribers to the memorandum of association are: D. E. O'Doherty, Finsbury-park, N., M.E.; A. A. Timbrell, 24, Martin's-lane, London, E.C., solicitor; J. Timmins, Islington, secretary; C. T. Wilkinson, Walthamstow, solicitor; F. Douglas Pease, Clapton, N.E., solicitor's clerk; W. Ulrich, Oxford-street, clerk; J. B. Spalding, 13, Sidney-square, E., retired schoolmaster.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR LETTERS PATENT.

Smoke Consuming Furnaces. S. Bond and W. Jackson. 424. Jan. 9th.
Improved Apparatus for making Caustic Soda and Chloride of Lime. F. W. Petrie. 472. Jan. 10th.
Improvements in Lubricators. W. Boby and H. W. Bowdon. 485. Jan. 10th.
Separating Sulphide of Nickel from matters containing Copper, Nickel and Iron. W. P. Thompson. 498. Jan. 10th.

ating Sulphide of Nickel from matters containing Copper, Nickel and Iron. W. P. Thompson. 499. Jan. 10th.
 acture of Plaster. J. C. Bloomfield. 508. Jan. 10th.
 g Aluminium and Aluminium Alloys. G. Wegner and P. Guhrs. 512. Jan. 10th.
 ing Aluminium and its Alloys. G. Wegner and P. Guhrs. 512. Jan. 10th.
 ned Ammonia Distilling and Refrigerating Apparatus. J. E. Her. 543. Jan. 10th.
 n of Underground Distribution and Recovery of Anhydrous ammonia. D. Branson, R. D. Thornburg, and J. E. Starr. 544. Jan. 10th.
 Colouring Matters. H. E. Newton. 558. Jan. 10th.
 vements in Explosives Material and their Manufacture. B. J. B. 560. Jan. 11th.
 ing Perfect Combustion in Furnaces. S. Taylor. 587. Jan. 11th.
 ing Lead Oxides and Lead Salts direct from Galena and Sulphate Lead. W. S. Kilpatrick. 621. Jan. 11th.
 ved Bleaching Process. C. D. Abel. 629. Jan. 11th.
 ctants. H. Noerdlinger. 631. Jan. 11th.
 acture of Coke, Coal Gas and Obtaining Bye-Products. P. Dvorko. 640. Jan. 11th.
 acture of Colouring Matters. J. Y. Johnson. 641. Jan. 11th.
 ing Cyanides from Blast Furnaces and Producer Gases. J. Addie, Cuninghame, and W. Macfarlane. 681. Jan. 12th.
 ved Apparatus for Obtaining Cyanides. J. Addie, J. Cuninghame, and W. Macfarlane. 682. Jan. 12th.
 Filtering Apparatus. J. Barker. 687. Jan. 12th.
 vements in the Manufacture of Salt from Brine. R. C. Wilson. 710. Jan. 12th.
 vements in Bleaching. C. D. Abel. 729. Jan. 12th.
 ological Manufacture of White Lead and Apparatus therefor. J. C. Chardson. 736. Jan. 12th.
 acture of Aluminium Sulphide. C. T. J. Vautin. 751. Jan. 12th.
 e Colouring Dyes. T. R. Shillito. 788. Jan. 13th.
 ating Lead Pipes from Bursting. J. F. Moore, J. Anderson, R. L. Wade, and J. Taylor. 801. Jan. 13th.

Drying Apparatus. H. A. A. Dombrian and J. S. Critchley. 816. Jan. 13th.
 Protecting Iron and Steel by Producing Magnetic Oxide thereupon. A. S. Bower. 822. Jan. 13th.
 New Chemical Compounds derived from Sulphuric Acid. H. E. Newton. 824. Jan. 13th.
 Disinfectant Paints. W. Griffiths. 849. Jan. 14th.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

P. N. EVANS, Q. WITZ and E. WEBER, under the style of the Reliance Ink Co., Great Ormond-st., Bloomsbury, manufacturers of, and dealers in chemical technical preparations.
 P. N. EVANS and Q. WITZ, under the style of Evans and Witz, Great Ormond-st., analytical and consulting chemists.
 R. HARLAND, G. PECK and R. T. HARLAND, under the style of W. Harland and Son, Merton, varnish manufacturers and colour dealers; as far as regards R. T. Harland.
 S. ELCOCK and A. P. WALKER, under the style of Elcock and Walker, Wordsley, glass manufacturers and glass merchants.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

ENGLISH, GEORGE ELIJAH, West Knighton and Broadmayne, Dorsetshire, brick and tile manufacturer.

Adjudications.

ENGLISH, GEORGE ELIJAH, West Knighton and Broadmayne, Dorsetshire, brick and tile manufacturer.
 CATFORD, EDWIN WALTER, (trading as E. W. Catford and Co.) Bristol and Mincing-lane, E.C., sugar and brewers' saccharum merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 14th.

millide—
 any, 5 pkgs. Beresford & Co.
 Acid—
 and, 100 pkgs. Beresford & Co.
 —
 ce, 230 c. Arnati & Harrison
 201 P. Hecker & Co.
 ina—
 and, 54 pkgs. R. W. Greeff & Co.
 inia Sulphate—
 and, 61 pkgs. Tough & Henderson
 inium—
 um, £120 A. B. Curtis & Co.
 ony—
 ey, 27 l. W. B. Marcus
 caland, 18 Vivian, Younger, & Co.
 gal, 4 Knowles & Co.
 ia, 10 Bailey & Leatham
 10 Bolling & Lowe
 alia, 26 J. J. Pratt & Son
 tos—
 ce, £26 Flageollet & Co.
 ussia, 15 L. Moiro & Co.
 es—
 any, 19 cks. P. Jantzen
 um, 21 S. H. Willoughby
 any, 19
 um, 45 Magee, Taylor, & Co.
 13 J. L. Lyon & Co.
 chouc—
 bar, 4 c. Prop. Bull Wf.
 197 L. & I. D. Jt. Co.
 ates, 81 Williams, Torrey, & Co., Ltd.
 dies, 247
 96 L. & I. D. Jt. Co.
 agascar, 36 Procter Bros.
 55 Prop. Bull Wf.
 bar, 93 Clarke & Smith
 um, 38 S. Figgis & Co.
 r Oil—
 25 cs. Major & Field
 ce, 10 brls. Beresford & Co.
 30 Stebbing & Co.
 30 Barron, Harveys, & Co.
 dies, 50 E. Davis & Co.
 50 Anderson, Weber, & Smith

Caustic Potash—

France, 100 c. F. W. Berk & Co., Ltd.
Chemicals (otherwise undescribed)
 France, £15 Mory & Co.
 Germany, 5 L. & I. D. Jt. Co.
 " 45 pkgs. A. & M. Zimmermann
 " 18 T. H. Lee
 " 5 W. Burton & Sons
 " 1 Philipps & Graves
 Holland, 13 A. & M. Zimmermann

Cream of Tartar—

Spain, 4 pkgs. Evans, Lescher, & Co.
 Holland, 42 Middleton & Co.
 Italy, 20 Howards & Sons
 Spain, 20 J. Knill & Co.
 " 8 B. & F. Wf. Co., Ltd.

Dyestuffs—

Aniline
 Holland, 24 pkgs. Elkan & Co.
 Belgium, 1 Sawyer, Sons, & Co.
Argols
 Italy, 150 pkgs. Thames S. T. & L. Co., Ltd.

Cutch

Rangoon, 200 pkgs. Galbraith, Pembroke, & Co.
 E. Indies, 400 R. G. Hall & Co.

Extracts

France, 250 pkgs. B. & F. Wf. Co., Ltd.
 Austria, 101 A. J. Humphrey
 Canada, 40
 France, 132 Prop. Chmbln. Wf.
 U States, 44 cks. Union L. Co., Ltd.
 Denmark, 70 pkgs. W. Burton & Sons
 7 M. D. Co.

Gambier

E. Indies, 260 pkgs. Beresford & Co.

Indigo

E. Indies, 48 chts. Arbuthnot, Latham, & Co.
 " 5 T. H. Allan & Co.
 " 46 F. W. Heilgers & Co.
 " 48 F. Huth & Co.
 " 92 Ross & Deering
 " 111 W. Brandts, Son, & Co.
 " 4 D. J. Keymer & Co.
 " 151 Benecke, Souchay, & Co.
 " 5 Philipps & Graves
 " 5 Stenthai & Co.
 Vera Cruz, 54 Fruhling & Goschen

France, 25 L. & I. D. Jt. Co.
 E. Indies, 4 T. Barlow & Bro.
 " 2 E. Bower & Co.
 " 9 Cayzer, Irvine, & Co.
 " 40 Elkan & Co.
 " 14 H. W. Jewesbury & Co.
 " 45 R. Von Glehn & Sons
 " 12 pkgs. Wrightson & Son
 " 10 Frith, Sands, & Co.
 " 83 Patry & Pasteur
 " 83 Stansbury & Co.
 " 641 L. & I. D. Jt. Co.

Myrabolams

E. Indies, 800 pkgs. A. Hagan
 " 31 Benecke, Souchay, & Co.
 " 690 L. & I. D. Jt. Co.
 " 1,025 R. G. Hall & Co.

Sumac

Italy, 100 pkgs. L. & N. W. Ry.
 " 54 J. H. L. Dore
 " 100 F. Roberts
 " 200 Sollas & Sons

Tanners' Bark

Belgium, 44 t. Leach & Co.
 19 Arnati & Harrison
 Melbourne, 40 Baxter & Hoare

Turmeric

E. Indies, 850 pkgs. Anderson, Weber, & Smith
 Italy, 126
 E. Indies, 50 E. Fellingham
 " 40 L. & I. D. Jt. Co.
 China, 200 Prop. Sun Wf.
 E. Indies, 746 Anderson, Weber, & Smith

Farina—

Belgium, 20 pkgs. T. H. Lee
 Holland, 100 J. Anderson & Co.
 " 50 J. Knill & Co.
 " 100 G. Hornzee

French Chalk—

Austria, 480 W. Harrison & Co.

Glucose—

U. States, 50 pkgs. 275 c. Prop. Chambln.'s Wf.
 Germany, 25 200 c. J. Knill & Co.
 " 600 600 Baxter & Hoare
 France, 300 300 Trier, Meyer, & Co.
 U. States, 400 400 R. G. Hall & Co.
 " 600 600 Boake, Roberts, & Co.
 " 400-2,210 L. Sutro & Co.
 " 2,000 2,000 Union L. Co., Ltd.

Guano—

Sweden, 7 t. Anglo-Swedish Co., Ltd.

Manganese—

E. Indies, 126 t. A. B. Curtis & Co.

Manure—

Germany, 100 t. F. W. Berk & Co., Ltd.

France, 30 J. Burnett & Sons

Mica—

E. Indies, £296 W. M. Smith & Sons

U. States, 8 "

Ochre—

France, 16 cks. Cellatly, Hankey, & Co.

Painters' Colours—

Germany, 8 cks. C. S. Lovell
 France, 8 pkgs. Mory & Co.
 Germany, 7 L. & I. D. Jt. Co.
 " 6 O'Hara & Hoar
 " 2 G. Steinhoff
 " 1 cs. Becker & Ulrich
 " 20 pkgs. Philipps & Graves
 U. States, 3 S. Guiterman & Co.
 France, 2 Hernn, Peron, & Co.
 Belgium, 60 Union L. Co., Ltd.
 " 5 T. Palmer

Paraffin Wax—

U. States, 550 brls. H. Hill & Sons

" 870 pkgs. J. H. Usmar & Co.

Phosphate Rock—

Belgium, 140 t. Odams Chemical

" 245 Manure Co.

France, 250 A. Hunter & Co.

Phosphorus—

N. Russia, 25 pkgs. W. Bauer & Co.

Pitch—

S. Russia, 460 brls. Bessler, Waechter, & Co.

Plumbago—

Cochin, 160 brls. Philipps & Graves

Germany, 166 cs. Prop. Scott's Wf.

Holland, 28 cks. B. Gallaway

" 22 cs. Philipps & Graves

Ceylon, 164 L. & I. D. Jt. Co.

" 8 A. Durant & Co.

" 357 Prop. Sun Wf.

" 164 Philipps & Graves

Cochin, 163 cks. Marshall & French

Potash—
Germany, 5 pkgs. L. & I. D. Jt. Co.
Potassium Carbonate—
France, 200 c. Charles & Fox
Potassium Sulphate—
Belgium, 77 pkgs. F.W. Berk & Co., Ltd.

Quicksilver—
Italy, 500 lbs. L. & I. D. Jt. Co.

Saltpetre—
E. Indies, 576 bgs. Brown & Elmslie
" 367 A. Hunter & Co.
" 151 L. & I. D. Jt. Co.
" 400 C. Wimble & Co.
" 1,281 Raffi Bros.

Sodium Acetate—
France, 19 pkgs. S. F. Waters & Co.
Holland, 7 Lister & Biggs

Sodium Silicate—
Germany, 34 pkgs. Beresford & Co.

Stearine—
Holland, 31 bgs. Robinson, Roberts, & Co.

France, 69 J. Goddard & Co.
Holland, 63 H. Hill & Sons
France, 96 Beresford & Co.
Belgium, 63 H. Hill & Sons

Talc—
Adelaide, £9 Harold Bros.

Tallow—
Queensland, 44 cks. A. B. Curtis & Co.

N. Zealand, 10 Nelson Bros.
" 30 Dalgety & Co., Ltd.

" 16 Bowron Bros.
" 8 Culverwell, Brooks, & Co.

" 60 Gear Meat Presv. Co.
Queensland, 116 Goad, Rigg, & Co.

N. Zealand, 25 J. Cooper
Sydney, 1 Leach & Co.

Queensland, 4 Dalgety & Co., Ltd.
N. Zealand, 29 J. Owen

U. States, 500 A. B. Curtis & Co.

Tartaric Acid—
Holland, 23 pkgs. B. & N. Wf. Co., Ltd.

Belgium, 33 "

Tinical—
E. Indies, 57 pkgs. J. Puddy & Co.

Ultramarine—
Holland, 1 ck. Philipps & Graves

Varnish—
U. States, 27 pkgs. Pinchin, Johnson, & Co.

France, 12 Flageollet & Co.

Verdigris—
France, 1 pkg. F. Allen & Sons

White Lead—
Holland, 26 cks. Burrell & Co.

Belgium, 6 pkgs. Leach & Co.

" 6 T. Palmer
" 1 brl. J. L. Lyon & Co.

France, 49 cks. Colthurst & Harding

Zinc Oxide—
Holland, 50 brls. M. Ashby, Ltd.

" 625 cks. Soundy & Sons

Germany, 25 Beresford & Co.

U. States, 100 brls. M. Ashby, Ltd.

LIVERPOOL.

Week ending January 12th.

Acid—
Havre, 1 ck. Cunard S. S. Co., Ltd.

Antimony—
Antwerp, 104 bgs.

Barytes—
Rotterdam, 22 cks.

Boracic Acid—
Leghorn, 12 cks. Pickford & Co.

" 42 "

Borate of Lime—
Antofagasta, 2,100 sks. D. Schiotttins

Iquique, 1,400 350 bgs.

Castor Oil—
Genoa, 15 cs. Evans, Sons & Co.

Calcutta, 500 "

" 250 Petrocochino Brs.

" 1,090 Raffi Brs.

Caustic Potash—
Dunkirk, 25 dms.

Chemicals (otherwise undescribed)

Rouen, 45 cks. R. J. Francis & Co.

Rotterdam, 13 "

Colours—
Bordeaux, 1 cs.

Antwerp, 1 ck.

Copperas—
Hamburg, 32 brls.

Cottonseed Oil—
New York, 10 brls.

Cream of Tartar—
Barcelona, 2 hds.

Dried Blood—
M. Video, 598 bgs.

Dyestuffs—
Argols

Patras, 19¾ cs. M. J. Angelpulo

Ilo, 10 tks. Evans, Sons & Co.

Cochineal—
Gr. Canary, 60 bgs. Kennedy & Moon

Divi Divi—
Santa Martha, 95 bgs. Jaffe & Sons

Amsterdam, 106 Brown, Geveke & Co.

Extracts—
Bordeaux, 20 cks.

Philadelphia, 350 bxs. 50 brls.

Fustic—
Carthage, 215 ps. Widow, Duranty & Son

Indigo—
Calcutta, 232 chts. 9 bxs.

Orchella—
Guayaquil, 26 bls. G. S. Bruce

Sumac—
Palermo, 50 bgs. J. Kitchen & Co.

" 1,250 220 bls.

Bordeaux, 5 bls.

Fiume, 350 Fratelli Levy

Barcelona, 100 bgs. A. Ruffer & Sons

Valonia—
Mediterranean, 10 bls. J. Tekeian & Co.

Patras, 2,549 bgs. C. G. Papayanni & Jeremias

" 676 P. A. Gavus

" 252 N. D. Lappa

" 50 G. E. Spiropulo

Glucose—
New York, 350 brls.

Philadelphia, 50 "

Dunkirk, 100 bgs.

Iodine—
Iquique, 169 kgs. A. Gibbs, Sons & Co.

Pisagua, 27 brls. "

Tocapilla, 28 "

Limestone—
Antwerp, 2 cs.

Magnesia—
Antwerp, 20 cs.

Manganese—
Gothenburg, 27 t.

Carrazal, qty.

Carthage, 1,430 t. Wigan Coal & Iron Co.

Caldera, qty.

Mineral White—
Genoa, 50 bgs.

Trieste, 100 V. Pazzi

Ochre—
Rouen, 32 cks. R. J. Francis & Co.

Paint—
New York, 10 cks. Lightbound, Aspinall

Boston, 35 cs.

Paraffin Scale—
Philadelphia, 400 brls.

Phosphates—
Ghent, 1,400 bgs.

Plumbago—
Hamburg, 10 brls.

Portland, 2 pkgs. T. F. B. Evans

Potash—
Hamburg, 10 cks.

Rouen, 42 Co-op. W'sale Society, Ltd.

Dunkirk, 10 "

Pyrites—
Huelva, 2,921 t. Matheson & Co.

Rosin—
Hamburg, 15 cs.

New York, 575 brls. R. Crooks & Co.

In transit, 55 bgs. A. Booth & Co.

Salt—
Antwerp, 300 t. J. T. Fletcher & Co.

Saltpetre—
Hamburg, 100 brls. 25 kgs.

Iquique, 1,967 sks.

Soap—
Mediterranean, 15 cs.

Leghorn, 500 bxs. Weaver & Sterry

" 200 "

Naples, 75 cs. A. Auverny & Co.

Boston, 2 Evans, Sons & Co.

Gr. Bassa, 2 B. Hicks

Philadelphia, 1,200 bxs.

B. Ayres, 300 cs. H. Brown

Soapstone—
Genoa, 200 bgs. G. G. Blackwell

Soda—
Rotterdam, 6 cks.

Stearine—
Antwerp, 22 bgs.

Sulphur—
Catania, 40 bgs.

Huelva, 1,420 t. Matheson & Co.

Tallow—
New York, 294 hds.

Boston, 48 "

Philadelphia, 100 brls. 70 cks.

Tartar—
Bordeaux, 13 cks.

Tartaric Acid—
St. Nazaire, 15 brls.

Rotterdam, 9 cks.

Tin Oxalate—
Rotterdam, 6 cs.

Ultramarine—
Hamburg, 20 cs.

Rotterdam, 5 4 cks.

Verdigris—
Bordeaux, 4 cks.

Waste Salt—
Hamburg, 102 bgs.

Zinc Oxide—
Antwerp, 100 brls.

Zinc White—
Rotterdam, 100 cks. O. & H. Marcus

HULL.

Week ending January 14th.

Acetate—
Trieste, 144 bgs. Wilson, Sons & Co., Ltd.

Barytes—
Antwerp, 37 cks.

Chemicals (otherwise undescribed)—
Bremen, 1 ck. Veltmann & Co.

Colours—
Flushing, 31 cs. 23 cks. 19 pkgs. Wilson, Sons & Co., Ltd.

Rotterdam, 12 "

" 6 pkgs. G. Lawson & Sons

Hamburg, 1 ck. Wilson, Sons & Co., Ltd.

Amsterdam, 2 cks. W. & C. L. Ringrose

Antwerp, 1 Wilson, Sons & Co., Ltd.

Ghent, 2 cs. 35 brls.

Rotterdam, 10 23 Hutchinson & Son

Cottonseed Oil—
New York, 500 brls. Wilson, Sons & Co., Ltd.

Cream of Tartar—
Rotterdam, 2 cks.

Dyestuffs—
Alizarine

Flushing, 27 pkgs. 40 cks. Wilson, Sons & Co., Ltd.

Rotterdam, 66 brls. Hutchinson & Son

Argols—
Bordeaux, 10 bgs. Rawson & Robinson

Indigo—
Kurrachee, 67 cs. Wilson, Sons & Co., Ltd.

Madder—
Rotterdam, 2 cks.

Myrabolams—
Bombay, 1,133 bgs.

Sumac—
Palermo, 950 bgs. Wilson, Sons & Co., Ltd.

Tannin—
Rotterdam, 4 cks.

Valonia—
Smyrna, 195 t.

Farina—
Antwerp, 100 bgs.

Hamburg, 100 G. Law

Harlingen, 100 "

Ghent, 285 pkgs. Wila

Manure—
Ghent, 50 t.

Ochre—
Rouen, 44 cks. R.

Paint—
Malta, 9 kgs.

Phosphorus—
Bordeaux, 2 cs. R.

Pitch—
Bordeaux, 86 cks. R.

Ghent, 60 brls. Wila

Potash—
Antwerp, 22 cks. Wila

Dunkirk, 34 dms. & C.

Rosin—
Hamburg, 1 cs. G. I.

Salt—
Copenhagen, 13 bgs. Wila

Soap—
Bari, 302 cs. Wila

New York, 745 pkgs. & C.

Stearine—
Rotterdam, 8 bgs. Wila

Amsterdam, 124 & C.

Talc—
Fiume, 100 bgs. Wila

Tallow—
Antwerp, 74 bgs. Wila

Tartaric Acid—
Rotterdam, 4 cks. Hott

Turpentine—
Bordeaux, 7 cks. Raw

Varnish—
Christiania, 3 dms. Wila

Malta, 1 cs. & Co.

Hango, 10 pkgs. Johnson

Waste Salt—
Hamburg, 310 bgs. G. Law

White Lead—
Antwerp, 78 cks. Bal

GLASGOW.

Week ending January 19th.

Acetate of Lime—
New York, 948 bgs.

Castor Oil—
Marseilles, 17 cs. 156 brls. Aikman & Co.

Colours—
Rotterdam, 20 brls. J. R.

" 12 cks. A.

Dyestuffs—
Alizarine

Rotterdam, 87 cks.

Extracts—
Antwerp, 9 cks.

Indigo—
Rotterdam, 10 chts. J. R.

Farina—
Hamburg, 100 kgs.

Glucose—
New York, 850 brls.

Iodine—
New York, 1 br.

Lead Acetate—
Antwerp, 27 cks. Robt

Paraffin Scale—
New York, 16 brls. N'Intosh & Co.

um,	20 cks.	J. Rankine & Son
m Carbonate—	53 cks.	
m Prussiate—	35 cks.	
ck,	1,028 brls.	
e—	40 kgs.	
t—	38 bgs.	
ck,	6 brls.	
rine—	5 cs.	
ck,	31 brls.	
salt—	500 bgs. 75 cks.	

TYNE.		
Week ending January 14th.		
Alum Earth—		
Hamburg,	36 cks.	Tyne S. S. Co.
Barytes—		
Antwerp,	112 cks.	Tyne S. S. Co.
Colours—		
Antwerp,	2 brls.	Tyne S. S. Co.
Farina—		
Hamburg,	25 bgs.	Tyne S. S. Co.
Glucose—		
New York,	100 brls.	Furness, Withy, & Co.
Stearine—		
Antwerp,	13 bgs.	Tyne S. S. Co.
Tallow—		
New York,	50 hhds.	Furness, Withy, & Co.
Ultramarine—		
Hamburg,	4 cs.	Tyne S. S. Co.

Zinc Oxide—	
Antwerp,	25 brls. 4 cks. Tyne S. S. Co.

GOOLE.		
Week ending January 4th.		

Dyestuffs—	
Alizarine	
Rotterdam,	77 cks.
Madder—	
Rotterdam,	4 cks.
Dyestuffs (otherwise undescribed)	
Boulogne,	71 cks. 2 cs. 24 pkgs.
Farina—	
Rotterdam,	20 bgs.
Hamburg,	750
Glucose—	
Hamburg,	4 cks.
Potash—	
Calais,	22 cks. 41 dms.

Saltpetre—	
Rotterdam,	300 bgs.
Soda—	
Rotterdam,	3 cks.
Waste Salt—	
Hamburg,	229 cks.

GRIMSBY.		
Week ending January 7th.		
Chemicals (otherwise undescribed)		
Hamburg,	15 pkgs.	
Farina—		
Hamburg,	100 bgs.	
Size—		
Hamburg,	10 pkgs.	
Antwerp,	11	
Zinc Ashes—		
Antwerp,	14 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending January 18th.

re,	22 cs.	£17
ke—	6 chys.	35
N,	5 t. 13 c.	£25
a (Liquid)—		
h,	12 cs.	£25
h,	6	15
um Carbonate—		
h,	10 c.	£16
um Chloride—		
h,	16 t. 5 c.	£867
h,	6	9
inople,	2 10	83
um Sulphate—		
h,	150 t.	£1,500
h,	85	850
h,	25	250
h,	50	500
h,	205	2,085
h,	9 10 c.	100
h,	6	63
an,	1 t.	£15
ck,	4 kgs.	6
Nitrate—		
ck,	2 t.	£39
de of Carbon—		
h,	5 t. 5 c.	£64
te of Lime—		
h,	2 t. 5 c.	£55
ag Powder—		
h,	50 t.	£430
h—		
h,	12 c.	£24
Acid—		
h,	36 cks.	£402
h,	2 cks.	£11
h,	2 t. 3 c.	87
h,	10 cs.	16
crystals—		
h,	20 kgs.	£29
Acid—		
h,	8 t. 8 c.	£58
h,	40 drs.	30
Soda—		
h,	1 t. 12 c.	£46
h,	5	13
h,	2 14	63
h,	11	8
h,	8	21
h,	10 8	111
h,	3 cs.	£13
h,	2	17
h,	18 c.	72
h,	11 c.	£15

Citric Acid—		
Libau,	15 c.	£115
Natal,	1	10
Rotterdam,	3 cks. 2	4 kgs. 143
Hamburg,	10	78
Bombay,	2	20
Coal Products—		
Aniline Oil		
Ghent,	5 rns.	£80
Hamburg,	10 drs.	359
Dunkirk,	5	200
Barcelona,	6 brls.	85
Aniline Salts		
Barcelona,	6 brls.	£55
Anthracene		
Rotterdam,	354 cks.	£2,087
Benzol		
Hamburg,	18 pkgs. 37 cks.	£539
Terneuzen,	18 drs.	176
Calais,	25 pns.	194
Rotterdam,	36	391
Coal Tar Dyes		
Santos,	3 cks.	£26
Calcutta,	1 cs.	25
Boston,	2-pkgs.	104
Cresosote		
Dieppe,	23,500 gals.	£123
Naphtha		
Melbourne,	20 drs. 10 cs.	£34
Treport,	52 brls.	125
Naphthalene		
Hamburg,	48 cks.	£86
Libau,	4	24
New York,	179	243
Paraffin Wax		
Auckland,	3 tks.	£114
Pitch		
Caen,	360 t.	£820
Naples,	50 cks.	26
Boston,	250 brls.	111
Amsterdam,	610	915
Calcutta,	125	85
Tar		
Sydney,	250 drs.	£62
Cape Town,	87	10
Mauritius,	41 pkgs.	22
Canaries,	9 cks.	12
Natal,	100	14
Toluol		
Rotterdam,	24 cks. 48 rns. 10 pns.	£303
Coal Products (otherwise undes.)		
Cochin,	30 rns.	£17
Copper Sulphate—		
Venice,	27 t. 19 c.	£383
Almeria,	5	83
Bordeaux,	2 10	45
Wellington,	11	9
Odessa,	10 5	155
Rouen,	5	90
Dunedin,	11	16
Genoa,	5 10	100
Cream of Tartar—		
Westport,	2 c.	£8
Auckland,	15	65
Sydney,	2 t.	166
Lyttelton,	10	46
Napier,	5	20
Townsville,	6	23

Disinfectants—		
Hamburg,	73 cks.	£365
Delagoa Bay,	3 c.	17
Singapore,	3	22
Bombay,	6 pkgs.	13
Auckland,	25	24
Hypophosphites—		
Montreal,	1 c.	£15
New York,	23	216
Manure—		
Calicut,	7 L. 10 c.	£36
Bordeaux,	20	100
Genoa,	99 10	318
Demerara,	260	2,700
Berice,	40	410
Malaga,	137 6	1,058
Mauritius,	168 14	845
Barfeur,	120	960
Martinique,	85 10	785
Phosphoric Acid—		
Philadelphia,	77 pkgs.	£380
Phosphorus—		
Dunedin,	9 c.	£101
Potash—		
Cape Town,	9 c.	£11
M. Video,	4 cks.	29
Potash Crystals—		
Toronto,	1 t. 5 c.	£112
Melbourne,	2 cks.	40
Potash Salts—		
Natal,	50 t. 15 c.	£6,197
Potassium Bichromate—		
Auckland,	5 c.	£11
Rosario,	1 ck.	17
Potassium Carbonate—		
Santos,	2 c.	£13
Potassium Chlorate—		
Hong Kong,	10 c.	£38
Gerao,	1 t.	64
New York,	4	220
Potassium Cyanide—		
Bombay,	1 cs. 40	£10
Salt Cake—		
Antwerp,	150 t.	£263
Saltpetre—		
Santos,	1 t. 2 c.	£25
Bahia,	3 6	75
Adelaide,	10	11
Oporto,	3 15	76
Brisbane,	10	11
Lyttelton,	2 5	50
Sheep Dip—		
Algoa Bay,	50 drs.	£11
Wanganui,	75 pkgs.	100
Gisborne,	75	100
Auckland,	1 75	100
Boca,	399 70 cks.	490
E. London,	100	21
Lyttelton,	100	129
Soda Ash—		
Townsville,	5 t. 3 c.	£37
Calcutta,	6 2	36
Auckland,	2 8	13

Soda Crystals—		
Algoa Bay,	9 c.	£3
Townsville,	19	3
Demerara,	1 t. 13	6
Sodium Bicarbonate—		
Burketown,	10 c.	£5
Auckland,	1 t.	8
Demerara,	5	5
Sodium Carbonate—		
Algoa Bay,	1 t. 12 c.	£64
Cape Town,	5	5
Lyttelton,	2	15
Napier,	2	6
Sodium Silicate—		
Auckland,	2 t.	£11
Christchurch,	1 4 c.	6
Sulphur—		
Newcastle,	5 t.	£48
E. London,	75 pkgs.	48
Sulphuric Acid—		
Algoa Bay,	9 t. 25 cs.	£47
Superphosphate—		
Martinique,	14 t.	£142
Tartaric Acid—		
Melbourne,	1 t.	£98
Sydney,	1	107
Adelaide,	10 c.	51
Napier,	5	26
Townsville,	2	39

LIVERPOOL.

Week ending January 18th.

Alkali—		
Philadelphia,	100 cks.	
Alum—		
Calcutta,	15 t.	£72
Constantinople,	4	24
Alexandria,	2 10 c.	15
Palermo,	2 2	10
Piræus,	4 9	22
Volo,	2 19	14
Santos,	3 6	17
Varna,	4 12	27
Bourgas,	1 10	7
B. Ayres,	23 10	141
Alum Cake—		
Bombay,	5 t. 4 c. 2 q.	£16
Alumina Sulphate—		
Santos,	8 c.	£2
Alumina Sulphocyanide—		
Magog,	18 c.	£50
Ammonium Carbonate—		
Montreal,	10 c.	£13
Passages,	14 2 q.	22
Bahia,	4	9
Ammonium Chloride—		
Leghorn,	1 t. 2 c. 1 q.	£36
Constantinople,	1 2	36
Palermo,	6	19
Trieste,	1 1	34

Ammonium Sulphate—

Barcelona,	15 t.	3 c.	£150
Valencia,	5	3 q.	50
Las Palmas,	5		52
New York,	153	7	1,583
Nantes,	25	7	255
Hamburg,	60		660

Asbestos—

Demerara,	1 pkge.		
Bilbao,	1 ck.		

Barium Hydrate—

Demerara,	10 c.		£5
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Barytes—

Bombay,	25 kgs.		
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Bisulphite of Lime—

Rangoon,	183 cs.		£128
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Bleaching Powder—

Baltimore,	109 cks.		
Barbadoes,	25		
Boston,	815	55 bxs.	
Havre,	25		
Montreal,	18		
San Sebastian,	30		
Alexandria,		12 brls.	
Antwerp,		10	
Cornwall,	39		
Genoa,	39		
Hamburg,	50		
Messina,	27		
N. York,	10 cs.	392	10 150
			10 pkgs.
Odessa,	16		
Oporto,	6		25 brls.
Piræus,	5		
Portland, Me.,	40		
Baltimore,	49 t.	16 c.	£424
Boston,	50		426

Bone Ash—

Marseilles,	4 t.	28 c.	1 q.	£90
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Boracic Acid—

Yokohama,	1 t.			£38
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Borax—

Antwerp,	22 t.	8 c.		£658
Sagua la Grande,	9			14
Rotterdam,	6	1	2 q.	128
Talcahuano,	4	2		6
B. Ayres,	19	3		29

Carbolic Acid—

New York,	6 t.	10 c.		£290
Orleans,	10	4	2 q.	304

Castor Oil—

Alexandria,	2 cs.			
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Caustic Potash—

New York,	3 t.	11 c.		£85
Portland, M.,	2	10		60
Sydney,	6			7

Caustic Soda—

Algoa Bay,	60 dms.	20 cks.	20 brls.	
Alicante,	114			
Baltimore,	570		135	
Barbadoes,	332	30		50
Chicago,	50			
Havana,	50			
Lisbon,	35			
Malaga,	49			
Oporto,	30			
Portland, Ont.,	100			
Rotterdam,	10			
San Francisco,	450			
Santo Domingo,	60			
Santos,	5			
Seville,	175			
Tarragona,	40			
Amsterdam,	369			
Antwerp,			54	
Bahia,	35			
Barcelona,	300		30	
Bombay,	20			
Boston,	275		400 kgs.	
B. Ayres,	50		100	
Calcutta,	80			
Carupano,			22	
Ceara,	20			
Constantinople,	10			
Genoa,	278			
Gibraltar,	20			
Gijon,	12			
Halifax,	60			
Havre,	16			
Hiro,	10			
La Guayra,	50			
Leghorn,	50			
Malta,	4			
Melbourne,	45			
M. Video,	175			
Nantes,	114			
New Orleans,	60			
N. York,	483			
Oporto,	30			
Passages,	58			
Pernambuco,	25			
Piræus,	50			

Portland, Me., 60 bxs.

St. John's, N.B.,	60		
Seville,	42		
Sourabaya,	35		
Sydney,	61		
Toronto,	25		
Yokohama,	75		

Chemicals (otherwise undescribed)

Singapore,	30 dms.	£14. 10s.	
Rotterdam,	9 c.	1 q.	33
Gibraltar,	1 t.	10	49
Larnaca,	3	2	5
Genoa,	1		32

China Clay—

Bombay,	10 t.		
Boston,	681		
New York,	140 bgs.		

Coal Products—**Aniline Colours**

Constantinople,	3 cs.		
Salonica,	10		
Bollate,	1		

Pitch

Maranham,	15 brls.		
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Tar

Demerara,	20 brls.		
Padang,	4 t.	17 c.	

Tar Oil

Seville,	2 brls.		
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Colours—

Benguella,	5 cs.	5 brls.	
New York,	20 cks.		
Portland, M.,	5		

Copras—

Piræus,	4 t.	10 c.	£10
San Francisco,	8	1	14
Las Palmas,	10		1

Copper Sulphate—

Barcelona,	7 t.	5 c.	£110
Venice,	12 t.	1 q.	172
Brindisi,	4	18	74
Naples,	4	9	67
Trieste,	9	10	149
Ancona,	9	18	140
Pernambuco,	5	12	3
Almeria,	5	1	2
Genoa,	25	1	263
Bordeaux,	120	9	1,865
Lisbon,	1	13	1
Palermo,	10	2	174

Disinfectants—

Valparaiso,	3 c.	3 q.	£18
Cadiz,	3		5

Dried Blood—

Baltimore,	153 t.	19 c.	2 q.	£1,200
New York,	20			150

French Chalk—

Para,	10 cks.			
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Guanine—

Antigua,	30 t.		£120
Tarragona,	50		482
Valencia,	50	1 c.	96

Gypsum—

New York,	62 t.	6 c.	£211
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Iron Sulphate—

Iquique,	2 t.	4 c.	£6
M. Video,	4	1	8

Lead Acetate—

Portland, M.,	11		£16
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Litharge—

Sydney,	1 ck.			
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Magnesia—

Paris,	11 cs.			
Havana,	12 bgs.			

Magnesium Citrate—

Valparaiso,	8 c.	q.	£50
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Magnesium Sulphate—

Rio de Janeiro,	50 kgs.			
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Manure—

Genoa,	400		£1,350
Havre,	60		173
Bordeaux,	500	4 c.	439

Metallic Sodium—

Rotterdam,	3 t.	1 c.	£737
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Ochre—

B. Ayres,	20 cks.			
Iquique,	75			

Oxalic Acid—

Oporto,	12 c.	2	£15
New York,	1 t.	10	46

Paint—

Arroyo,	1 brl.			
Bathurst,	15 kgs.			
B. Ayres,	5 cks.	4 cs.		
Callao,		66 kgs.		
Loanda,	3			
Matanzas,	20			
Mossamedes,		200		
Nassau,	8			

Old Calabar, 35 pkgs.

Para,	11		
Sagua la Grande,	7		
Santa Cruz,		60	
Santos,		1	
Sierra Leone,	3	178	
Amsterdam,		6	6 dms.
Benguella,		140	
Carthage, N.G.,		111	
F. London,		40	
Gr. Canary,			10 cns.
Hamburg,	7		
Havana,	4		
Iquique,	75		
once,	3		
Quitta,		9	2 dms.
Rangoon,	5		
St. John's, N.B.,		10	5 brls.
Santa Catherina,	3		
Tunis,	5		
Vera Cruz,		3 cs.	

Painters' Colours—

Capetown,	10 cks.			
Ceara,	24 kgs.	70 dms.	1 cs.	
Colon,	12			
Constantinople,	460			
Hong Kong,	200		12 brls.	
Madras,	50			
Malta,	101			
Maranham,	1 ck.		7	2
Nassau,	97		4 cks.	
N. York,	4 bxs.		126	4
Pt. Elizabeth,			1	
Portland, M.,			4	
Rio de Janeiro,	20		40 brls.	
San Juan,	26		1	
Talcahuano,	75		3	
Valparaiso,	15 cs.		2	
Bahia,	10			
Baltimore,	100		68	
Bombay,	56 cs.	1,190		
B. Ayres,	9		112	140
Cabedello,	10			
Cienfuegos,	1 trs.			
Guantanamo,			4	
Havana,			29	
Lisbon,			10	
Manila,			2	
Pacasmayo,	13 cs.			
Pernambuco,	10			
Rangoon,	12 dms.			
St. John's, Nfld.,			1	
Santa Domingo,	6 tcs.			

Paraffin Wax—

Ceara,	24 pkgs.			
Jaffa,	10 cs.			
Odessa,	26 bgs.			
San Sebastian,	48			
Scio,	3			
Smyrna,	10			

Phosphate—

Barcelona,	1 t.	10 c.	£8
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Phosphorus—

Shanghai,	10 cs.		£100
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Potash—

B. Ayres,	19 c.	3 q.	£24
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Potassium Bichromate—

Genoa,	4 t.	4 c.	£132
Alexandria,	7		13

Potassium Carbonate—

New York,	3 t.	15 c.	£74
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Potassium Chlorate—

Rio de Janeiro,	1 t.		£70
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Manaos,		2 c.	8
Antwerp,	1		71
Calcutta,		8	20
Philadelphia,	12	10	692
Gothenburg,	5		324
Singapore,	15		852
Rotterdam,		17	50
Copenhagen,	3		160
New York,	26	5	1,419
Shanghai,	3		176
Higo,	61		3,424
Hong Kong,	1	2	62
M. Video,	5	3	271
Yokohama,	12	10	823

Salt—

Boston,	20 t.	
Degama,	25	
Demerara,	14	
Malta,	5	
Montreal,	147	
Portland, Ont.,	928	17 c.
Santos,	8½	
Sierra Leone,	555	
Sydney,	1	1
Talcahuano,	52	12
Va paraiso,	2	3
Warre,	5	7
Abonnema,	25	17
Akassa,	200	
Anamaboe,	6½	
Antwerp,	154	
Bakana,	62½	

Soda Crystals—

St. John's,	20 kgs.
Salonica,	14 brls.
Smyrna,	50
R. Ayres,	50
Calcutta,	66
Philadelphia,	167
Singapore,	10
Toronto,	10 kgs. 30

Sodium Arseniate—

Boston,	6 cks.
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Sodium Borate—

Portland, M.,	27 brls.
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Sodium Bicarbonate—

Barbadoes,	60 kgs.
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R. Ayres,	50
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Constantinople,	40
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Genoa,	10
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Malta,	10
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Melbourne,	250
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Philippine,	20
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St. John's, Nfld.,	18
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Trinidad,	30
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Amsterdam,	10
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Barcelona,	60
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Boston,	110
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Odessa,	200
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Rotterdam,	45
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Toronto,	10
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Valencia,	40
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Yokohama,	50 cks.
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Sodium Bichromate—

Passages,	0 kgs.
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Sodium Carbonate—

Boston,	214 brls.
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B. Ayres,	50 dms.
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New York,	140
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Rotterdam,	50
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Sodium Chlorate—

Hamburg,	20 kgs. 4 cks.
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Rotterdam,	60
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Sodium Silicate—

Barcelona,	8 cks.
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Melbourne,	12 brls.
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Stearine—

Savanna,	50 cks.
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Sulphur—

Maranham,	5 c.
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Boston,	105 t.
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Sulphuric Acid—

Rio Grande do Sul,	19 c. 2 q.
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Superphosphate—

Gr. Canary,	10 t.
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Nantes,	130
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Tallow—

C. C. Castle,	2 cks.
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Oporto,	63 brls.
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Tannic Acid—

Magog,	6 c.
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Tartaric Acid—

Bahia,	6 c.
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Turpentine—

Valparaiso,	1 cs.
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Varnish—

R. Ayres,	8 cs.
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Portland, M.,	7
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St. Louis,	11
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Talcahuano,	1
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Valparaiso,	25
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Bombay,	25
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E. London,	3
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Genoa,	5 cks.
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Mylene,	3 t.
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Rio Grande do Sul,	4
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de Janeiro,	5
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St. John's, N.B.,	10 kgs.
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White Lead—

Bahia,	50 kgs.
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Callao,	26
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Portland, M.,	1 cks.
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Rio Grande do Sul,	2
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St. John's, Nfld.,	22
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Zinc Chloride—

Bombay,	5 t.
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Rio de Janeiro,	2
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12 c. 1 q.	63
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Zinc White—

Maranham,	6 brls. 16 kgs.
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HULL.

Week ending January 14th.

Ammonium Sulphate—

Rotterdam,	484 brls.
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Bleaching Powder—

Bombay,	5 cks.
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Bombay,	100 dms.
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Dunkirk,	22
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Leghorn,	127
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Reval,	127
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Caustic Soda—

Reval,	416 dms.
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Chemicals (otherwise undescribed)

Antwerp,	3 cs.
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Amsterdam,	88 brls.
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Bergen,	2
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Bombay,	1,950 cks.
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Christiania,	10
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Copenhagen,	1 pkg.
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Flushing,	10
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Gothenburg,	12
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Harlingen,	8
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Hamburg,	87
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Kurrachee,	403
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New York,	15 dms.
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Reval,	6
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Stettin,	190
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Trieste,	8
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Danzig,	65
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Copper Sulphate—

Christiania,	2 cks.
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Cottonseed Oil—

Antwerp,	270 c.
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Bremen,	100
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Flushing,	40
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Fiume,	83
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Hamburg,	501
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Rotterdam,	1,834
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Stavanger,	20
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Trieste,	598
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Creosote—

Amsterdam,	40 cks.
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Danzig,	50
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Creosote Salt—

Reval,	55 bgs.
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Dyestuffs (otherwise undescribed)

Stettin,	174 brls.
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Guano—

Dunkirk,	766 brls.
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Linseed Oil—

Antwerp,	110 c.
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Bergen,	71
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Bombay,	268
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Drontheim,	102
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Hamburg,	200
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Hango,	136
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Rotterdam,	63
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Stralsund,	6,011
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Stavanger,	82
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Manure—

Dunkirk,	186 brls.
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Ghent,	100 t.
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Rotterdam,	370
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Mineral White—

Messina,	20 cks.
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Naphthalene—

Reval,	312 bgs.
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Ochre—

Amsterdam,	7 cks.
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Painters' Colours—

Antwerp,	3 cks.
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Amsterdam,	18
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Bergen,	5
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Bombay,	17
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Christiania,	210 cs. 618 kgs.
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Christiansand,	2 dms.
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Hamburg,	38
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Messina,	4
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New York,	135
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Palermo,	25
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Rotterdam,	3
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Venice,	14
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Paraffin Wax

Danzig,	65 kgs.
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Pitch—

Antwerp,	70 t.
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Dunkirk,	101
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Size—

Bremen,	25 cks.
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Soap—

Bombay,	250 cs.
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Tar—

Amsterdam,	6 cks.
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Yarnish—

Bombay,	75 dms.
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Hamburg,	2 cks.
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GLASGOW.

Week ending January 19th.

Ammonium Chloride—

Rouen,	1 t. 9 c.
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Ammonium Sulphate—

Demerara,	178 t. 1 c.
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Leghorn,	20
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Bleaching Powder—

Melbourne,	148 t. 2 c.
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Rouen,	5
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Borax—

Melbourne,	1 t.
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Caustic Soda—

Demerara,	3 t. 7 c.
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Rouen,	67
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Chemicals (otherwise undescribed)

Bombay,	343 t. 1 c.
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Coal Products—**Aniline Dyes**

Calcutta,	1 c.
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Aniline Oil

Rouen,	3 t. 6 c.
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Benzol

Rotterdam,	11 dms.
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Naphtha

Rouen,	33 t. 17½ c.
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Pitch

New York,	22 t. 11 c.
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Tar

Bombay,	5
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Halifax,	25 t.
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Colours—

Rotterdam,	4 cks.
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Copperas—

Portland, M.,	30 t. 7½ c.
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Cottonseed Oil—

Rotterdam,	5 brls.
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Trieste,	5 t. 7½ c.
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Dyestuffs—**Extracts**

Portland, Me.,	1
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Fustic Extract

Portland, Me.,	1
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Farina—

Venice,	6 t.
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Philadelphia,	1 t. 10 c.
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Linseed Oil—

Portland, Me.,	8 t. 13½ c.
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Philippines,	1
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Bombay,	2
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Manure—

Demerara,	46 t. 9½ c.
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Paint—

Calcutta,	2 t.
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PRICES CURRENT.

WEDNESDAY, JAN.

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 11/-
Glacial	"	50/-	
Arsenic S.G., 2000°	"	0 14	6
Fluoric	per lb.	0 0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0	10
(Cylinder), 30° Tw.	"	0 3	0
Nitric 80° Tw.	per lb.	0 0	1 1/4
Nitrous	"	0 0	1 1/4
Oxalic	nett	0 0	3 3/4
Phosphoric, 1750°	"	0 1	2 1/2
Picric	"	0 1	1
Sulphuric (fuming 50 %)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	5 0
(free from arsenic, 145°)	"	1	5 0
Sulphurous (solution)	"	2	15 0
Tannic (pure)	per lb.	0 1	2
Tartaric	"	0 0	11 1/2
Arsenic, white powdered	nett	per ton	13 0 0
Alum (loose lump)	"	5	5 0
Alumina Sulphate (pure)	"	5	0 0
Aluminium	per lb.	2s. 8d.	to 0 3 2
Ammonia, Anhydrous	"	0	1 1
" 880=28°	per lb.	0 0	2 1/2
" =24°	"	0 0	1 3/4
Carbonate	nett	0 0	3 3/4
Muriate	per ton	20	0 0
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
Nitrate	per ton	38	10 0
Phosphate	per lb.	0 0	10 1/2
Sulphate (grey) London	per ton	10	17 6
(grey) Hull	"	10	17 6
Aniline Oil (pure)	per lb.	0 0	7 1/2
Aniline Salt	"	0 0	6 3/4
Antimony	per ton	45	10 0
(tartar emetic)	per lb.	0	1 0
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	7	10 0
Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Dyes:—

Alizarine (artificial) 20 %	nett	per lb.	0 0 8
Magenta	"	"	0 3 9

Coal Tar Products

Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 0 0
Benzol, 90 % nominal	per gallon	0 2 1
" 50/90	"	0 1 9
Carbolic Acid (crystallised 40°)	per lb.	0 0 8
(crude 60°)	per gallon	0 2 6
Creosote (ordinary)	"	0 0 1 1/4
(filtered for Lucigen light)	"	0 0 1 3/4
Crude Naphtha 30 % @ 120° C.	"	0 0 11
Grease Oils, 22° Tw.	per ton	2 5 0
Pitch, f.o.b. Liverpool or Garston	"	1 8 0
Solvent Naphtha, 90 % at 160°	per gallon	0 1 2
Coke-oven Oils (crude)	"	0 1 1 1/4
Copper	per ton	45 10 0
Sulphate	"	16 10 0
Oxide (copper scales)	"	42 0 0
Glycerine (crude)	"	13 0 0
(distilled S.G. 1250°)	"	43 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 12 6
Sulphide (antimony slag)	"	2 0 0
Lead (sheet) for cash	"	11 0 0
Litharge Flake (ex ship)	"	13 10 0
Acetate (white)	"	25 15 0
brown	"	17 10 0
Carbonate (white lead) pure	"	20 0 0
Nitrate	"	20 0 0

Lime, Acetate (brown)	per ton	
(grey)	"	
Magnesium (ribbon and wire)	per oz.	
Chloride (ex ship)	per ton	
Carbonate	per cwt.	
Hydrate	per ton	
Sulphate (Epsom Salts)	per ton	
Manganese, Sulphate	"	
Borate	per cwt.	
Ore, 70 %	per ton	
Methylated Spirit, 61° O.P.	per gallon	
Naphtha (Wood), Solvent	"	
Miscible, 60° O.P.	"	

Oils:—

Cotton-seed	per ton	
Linseed	"	
Lubricating, Scotch, 890°—895°	"	
Petroleum, Russian	per gallon	
American	"	

Potassium (metal) per oz.

Bichromate	nett	per lb.
Carbonate, 90% (ex ship)	"	per ton
Chlorate	"	per lb.
Cyanide, 98%	"	"
Hydrate (Caustic Potash) 80/85 %	"	per ton
(Caustic Potash) 75/80 %	"	"
(Caustic Potash) 70/75 %	"	"
Nitrate (refined)	"	per cwt.
Permanganate	"	per cwt.
Prussiate Yellow	"	per lb.
Sulphate, 90 % (ex ship)	"	per ton
Muriate, 80 % (do.)	"	"

Silver (metal) per oz.

Nitrate per oz.

Sodium (metal) per lb.

Carb. (refined Soda-ash) 48 %	nett	per ton
(Caustic Soda-ash) 48 %	"	"
(Carb. Soda-ash) 48 %	"	"
(Carb. Soda-ash) 58 %	"	"
(Soda Crystals)	"	"
Acetate (ex-ship)	"	"
Arseniate, 45 %	"	"
Chlorate	"	per lb.
Borate (Borax)	net, per ton	
Bichromate	"	per lb.
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	lots
(74 % Caustic Soda)	"	"
(70 % Caustic Soda)	"	"
(60 % Caustic Soda)	"	10 ton
(60 % Caustic Soda, cream) (f.o.b.)	"	"
Bicarbonate	"	"
Hyposulphite	"	"
Manganate, 30%	"	"
Nitrate (95 %) ex-ship Liverpool	"	per cwt.
Nitrite, 98 %	"	per ton
Phosphate	"	"
Prussiate	"	per lb.
Silicate (glass)	"	per ton
(liquid, 100° Tw.)	"	"
Stannate, 40 %	"	per cwt.
Sulphate (Salt-cake)	"	per ton.
(Glauber's Salts)	"	"
Sulphide	"	"
Sulphite	"	"
Strontium Hydrate, 100%	"	"
Sulphocyanide Ammonium, 95 %	"	per lb.
Barium, 95 %	"	"
Potassium	"	"
Sulphur (Flowers)	"	per ton.
(Roll Brimstone)	"	"
Brimstone: Best Quality (nominal)	"	"
Superphosphate of Lime (26 %)	"	"
Tallow	"	"
Tin (English Ingots)	"	"
Crystals	"	per lb.
Zinc (Spelter)	"	per ton
Chloride (solution, 96° Tw.)	"	"

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CURRENT TOPICS.

AN INSTANCE OF SUCCESSFUL CO-OPERATION.

SOMETHING better than two years ago, when the Sectional Committee of the Manchester Chamber of Commerce was appointed to foster the interests of the chemical trade, we emphasised the possibilities which such a step opened up for alleviating the many minor difficulties which manufacturers of chemicals and allied articles have to contend with. In addition to small matters, we then had reason to hope that one or two serious evils might be subjected to a pruning process by the aid of such a Committee, thereby clearing the way for more radical reform in the future.

As it is often unwise to expect too much from committees, it is all the more pleasing to find such a satisfactory and practical net result as the report of this Committee for the past year indicates. The amendment of the Patent Law is a matter which has claimed attention from the outset, but more particular attention has been given to this question of late, and the labours of the Committee have led to the formation of a Special Committee to deal with the changes which it is thought expedient to make in connection with the preliminary examination of patents.

While speaking of patents, it may interest our readers to learn that we hope shortly to supplement our present abstract of British Patents by the addition of a list of such German Patents as are suited to our columns: an addition which we have expended considerable trouble in securing, and which we trust will be proportionately appreciated.

While doing its best to secure the improvement of our Patent Laws, the Committee has succeeded in finally disposing of two points which were likely to have hurtfully influenced manufacturers and owners of chemical works. Through the instrumentality of this Committee the Manchester Corporation has been induced to alter the wording of its bye-laws concerning the erection of new buildings, so as to render it impossible for the said bye-laws to be construed in such a manner as to include chemical plant.

The Weights and Measures Act of 1878 might also have been interpreted so as to have reference to the weights and scales which are extensively used in chemical works for preparing proportional mixtures for the purposes of manufacture. The Committee have, however, received the assurance of the Manchester authorities that such scales and weights will not be placed in the same category as those referred to as scales and weights used for trade purposes. This is a matter upon which other Chambers, situated in districts where the chemical industry is a prominent one, might with advantage be petitioned to consult with the local authorities.

PROFITABLE PHILANTHROPY.

In business philanthropy is generally a failure, especially when profits have to be taken into consideration, and possibly

we may be suspected of antiphrasis when we speak of profitable philanthropy. Such is not the case, however, for the White Lead Co., Limited, have, according to their claims, succeeded in perfecting a process for manufacturing white lead which protects those engaged in the manufacture of the same from all possibility of suffering from lead poisoning. This is undoubtedly a great boon, but of course the white lead so made must be of a quality which will enable it to compete at a profit with ordinary white lead. We give elsewhere a brief outline of the process, from which it will be seen that lead sulphate is a prominent constituent in this article. Undoubtedly the process is not injurious to the employes, for according to the report of the medical officer to the works, not a single case of lead poisoning had come under his notice, whereas in the Newcastle district about sixty cases of lead poisoning had been reported at the infirmary in six months.

The quality of the product (and consequently the profit) has yet to be more widely ascertained. The question of body is an important one, and outweighs the other advantages of permanency and harmlessness; but it is anticipated that soon this white lead will be made to possess a covering power superior to the best carbonated white lead. It is a "simple" process by which this end is to be accomplished—a fact which gives promise of speedy realisation, which we should be pleased to witness, for therein we should have the probation of a paradox, and a contradiction contradicted.

THE MANCHESTER CHAMBER OF COMMERCE.

CHEMICAL SECTION.

AT the annual meeting of the Manchester Chamber of Commerce held on January 24th ult., at the Chamber, the Chemical and Allied Trades Sectional Committee presented the following report:—

The first subject which occupied the attention of the Executive was the bearing of certain proposed bye-laws of the Manchester Corporation upon the erection of chemical plant. The Executive put itself into communication with the Improvement and Building Committee of the Corporation, who courteously invited the Executive to make observations upon the proposed new bye-laws. It was accordingly pointed out to the Improvement Committee that the phrase "new building" required definition, since it might be applied to the erection of plant and apparatus, and steam boilers. This would be objectionable on two grounds—first, because in compliance with another bye-law (79) all plans of new buildings must be submitted to the City Surveyor and the Improvement Committee, thus risking the exposure of valuable designs of special plant and apparatus; and secondly, because in compliance with bye-law 31 unnecessary expenditure would be entailed in surrounding plant and apparatus with fire-bricks, at least 9 inches in thickness, for a distance of 10 feet at the least in height from the floor. It was pointed out that the cost of erecting a steam boiler, retort, or still, in works would be more than doubled if such plant or apparatus were included in the meaning of the term "building." These suggestions were most favourably received by the Improvement Committee, who offered to substitute for the words "new building" the words "public building, a building of the warehouse class, or a domestic building." On the question of fire-brick surroundings of flues, the Committee conceded that 4½ inches instead of 9 inches should be required in bye-law 31, as the necessary thickness of fire-brick linings.

The Executive Committee entrusted a Sub-Committee with the preparation of a report upon the new Spanish Tariff and its prospective effect upon the Chemical export trade. This report was duly forwarded to the Trade and Treaties Committee.

In May last Sir H. E. Roscoe, by question in the House of Commons, attempted to put a stop to the endeavours of the Inland Revenue Officers to bring the users of stills for the production of coal-tar products under the Act of 1846, which provides that the users of stills should take out a yearly licence costing 10s. or in default be fined £10. Sir Henry pointed out that for 30 years the Act had only been applied to spirit distilleries, and he suggested that if other stills were to be proceeded against a special Act should be passed. Your Executive, by resolution, heartily supported Sir Henry's action, and will not omit to take further steps should the occasion arise.

There had been, for some time, considerable doubt in the mind of chemical manufacturers as to their liability for the exactness of mixing scales, and as their freedom from harassment by inspectors weights and measures seemed to depend upon the interpretation of a single phrase in the Act, it was determined to set the matter at rest as far as the intention of the Manchester authorities could do so, by an inquiry from the Chairman of the Weights and Measures Committee of the Manchester Corporation. In reply, a letter was received from the Chief Inspector of the Committee, which your executive regarded entirely satisfactory. Mr. Robinson wrote that he was instructed the Committee to say that they would not consider weights and measures used exclusively for the purpose of mixing proportional quantities of raw material in the process of manufacture, as being in use for the purpose within the meaning of the Weights and Measures Act, 1878, if the weights and scales were used in a separate and distinct place, and not from those used for trade purposes.

Patent Law Amendment.—This subject, which occupied the Executive closely two years ago, has recently re-engaged their attention. As the point which calls for immediate reform, viz., preliminary examination of patents, is of equal importance to all who are interested in inventions—mechanical as well as chemical—at the instance of the Executive, the Directors of the Chamber have appointed a Special Committee to deal with this subject.

INNOCUOUS WHITE LEAD.

THE difficulty of avoiding the occurrence of lead poisoning among those employed in the manufacture of white lead by the process is too well known to need special reference in these columns. The White Lead Co., Limited, who have a process for manufacturing innocuous white lead, threw open their works at Possil Park, Glasgow, recently for inspection in order to show the advantages of their process over the old one. A number of experts and reporters took advantage of this opportunity of visiting the works. The process was explained by the manager (Mr. Charlier), who, after apologising for the absence of Sir Henry Taylor, said he would not waste time by detailing all the difficulties which the Company had undergone in endeavouring to make their white lead a success; but desired, in a straightforward manner, to refer to the present process perfected to date, and felt sure all present would agree with him that they had succeeded in forming a pigment second to none in the white-lead market. Spanish ore had on many occasions been used, but, as it contained silver, it prevented a good lead being extracted as desired, and now English ore was used, which contained no silver. The bulk of the ore is generally sufficiently fine to be sublimed without grinding; it is, therefore, riddled and the large pieces are broken up. Each barrowful is carefully weighed as it leaves the shed, the contents being made up to 2 cwt. When starting a furnace they are lighted overnight, and are then generally in readiness for charging early in the morning. No ore is thrown on until the fire is perfectly clear and free from all smoke and dark char, and the flues thoroughly heated. Charging is begun very gently, by throwing on a small shovel of ore, scattering it over the surface of the fire. At this time the foreman adjusts exactly the current drawn through the Korting's by regulating the steam, just enough being given to draw all the fumes, so that none are lost. When charging is proceeding regularly no ore is thrown on until the previous charge has disappeared as otherwise the fire gets choked and loses its heat. The fume from the furnace into the flue, where it meets a blast of air intended to complete the oxidation of any volatilised galena or coke-dust. It passes through the main flue into a tower and into Korting's blowers, which force it into the first box of the condenser. This condenser, though constructed of wood, is lined internally with fire-brick, in order to resist the heat, which is so great that it at once chars wood. The fume, now mixed with steam, is forced under flues, and gains the second box of the condenser through a brick channel. In this box the fume is made of bricks, with vertical openings through which the fume is forced, a portion, of course, being condensed. In the second box the heat is not so great as in the first, and the walls are simply lined with sheet brass. From the second box the fume reaches the third and last, which contains vertical flues with a much narrower aperture than in boxes 1 and 2. The fumes are discharged into the washing-vats about three times, and are then thoroughly washed with slightly acid water, to get rid of any oxide into sulphate. The product is further washed to free it entirely from acid, and then, after settling, it is pumped into presses subjected to a pressure of 90 lb. to the square inch. In these presses most of the water is got rid of, the product when removed from the press-bags being a white cake, containing from 10 to 15 per cent water. These are then placed in earthenware pans in the drying rooms, and dried at a temperature of 120 F., and after this operation

is ready for the market. At the present moment there are 30 furnaces available for work, each one being capable of converting a ton of lead a day, or a total of 30 tons, being at the rate of 210 tons a week, or 10,000 tons a year. The white lead so produced is perfectly non-poisonous, and has no injurious effects on the men who make it, the grinders who grind it, or the painters who use it, and, as a simple verification of this statement, he mentioned the fact that when a person is suffering from poisoning from carbonate of lead, diluted sulphuric acid is given as a medicine to convert the poison into non-poisonous sulphate of lead, which is the very pigment the company made. As a practical verification of this statement, no one could point to a single case of lead-poisoning amongst their workpeople. Their white lead did not discolour, nor was it affected by any gases of the atmosphere, and, while carbonate of lead quickly turns black, theirs remained as white as snow for years. It withstands the action of sea-water, does not act chemically on metals, does not blister or crack, and is an effective anti-corrosive paint. It is also of great fineness and peculiar beauty, and much whiter than carbonate of lead. With regard to body, it has quite as much covering power as carbonate of lead, and he had every hope, from experiments made, that they would by a simple process soon give it a body far superior to the best Newcastle carbonate white lead. (Applause.) He had been told that this was impossible owing to the lead sulphate not containing so much lead as the carbonate; but he contended that that theory was entirely erroneous, and that to make a perfect pigment it was not the quantity of lead that affected it, but the other elements in conjunction with the lead. Zinc oxide, for example, was a pigment greatly used in the trade; it contained a larger percentage of zinc than any other zinc compound, and yet had little covering power, whereas zinc sulphide had a far less percentage of zinc than zinc oxide, and yet had double its covering power. He contended that the same argument was applicable to lead.

THE ELECTROLYTIC BLEACHING OF COTTON AND WOOLLEN FABRICS.

By H. N. WARREN.

SO termed electrolytic bleaching, or in other words the employment of chlorine evolved during electrolysis, is now somewhat largely employed. Not that chlorine possesses superior bleaching properties when so evolved, but on the other hand retains, on account of its nascent origin, far more destructive properties with regard to its action upon vegetable tissue.

Solutions containing chlorides are not, however, the only available baths that can be employed as bleaching agents; for, if acidulated water tinged red by the addition of a small quantity of a solution of litmus be electrolysed by a feeble current, after the lapse of a few moments the solution will have become entirely colourless. By enlarging the platinum electrodes, and employing a current of four volts, a weak solution of indigo may be also speedily rendered colourless.

After various experiments the author has used to the best advantage electrodes composed of compressed slabs of graphite rendered sensitive by subjecting them to an elevated temperature in a non-oxidising atmosphere; having previously saturated the same with a concentrated solution of platinic oxalate.

The decomposing trough employed by the author was made of porcelain slabs of convenient dimensions, the bottom of the trough being furnished with two prepared graphite electrodes, the same being separated from each other by a non-conducting medium, and furnished with outward connections for establishing electrolytic contact when required. A similar trough to the above described, and capable of containing about 200 gallons of acidulated water, was experimented with, employing an electro motive force of 500 volts, the articles subjected to the bleaching action of the same being composed for the most part of indigo dyed cotton and woollen fabrics, which, upon examination of the same at the duration of about 30 minutes, as regards the cotton, had become entirely destitute of colour, whilst those composed of the more refractory tissues (such as wool) had assumed a decided reddish tint, requiring several hours' action to remove the same. In future experiments, however, the same quantity of fabrics were successfully bleached in half the time by employing a temperature of about 80° to 100° Fahr., whereby the hydrogen peroxide that is formed during the electrolysis is at once decomposed, thus accelerating the bleaching action. At present, however, there is (regarding this mode of bleaching) a considerable amount of uncertainty, which requires further investigation. When this difficulty has been overcome the process appears to be a most promising one as a bleaching agent, no difficulties arising from the destructive action upon the tissues, as is observed only too frequently in the case of chlorine.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the city of London for the week ending January 21st was practically faultless. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed one deficiency in illuminating power, and that was against the South Metropolitan Gas Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candle.)	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'35	13'15	0'18	Nil.
South Metropolitan Gas Co.	6	16'31	11'03	0'55	Nil.
Commercial Gas Co.	2	16'3	8'3	0'0	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 c. ft. of gas on an average of three days.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, during the month ending January 12th, 1893, the proportion of total sulphur contained in the Leeds gas has averaged 15'40 grains per 100 cubic feet. The following are the results of tests made, expressed in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Dec., 1892.	Jan., 1893.			Weight.	Volume.
Meadow Lane....	16. 20. 29.	3. 10.	12'53	1'40	40'75	0'05
New Wortley....	15. 23. 30.	5. 11.	18'10	3'74	57'05	0'07
York Street....	16. 23. 29.	6. 11.	13'76	2'23	48'90	0'06
Average at Works	..	..	15'40	2'65	48'90	0'06
Average at East Parade.....	..	..	16'48	3'43	57'05	0'07

During the month the average illuminating power of the Leeds gas, tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure, to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24-hole, 18'5; standard batswing, 19'2; Sugg's illuminating power meter, 18'5.

SOLDERING ALUMINIUM.

A SATISFACTORY method of soldering aluminium has claimed the attention of all interested in this metal for years, and very soon after the birth of the aluminium industry the Societe D'Encouragement in France voted a prize of £1,000. for its successful solution. De Mourey, of Paris, was awarded the prize, and his solders and methods of soldering can be found described in any large treatise on aluminium. These solders, it is well-known, are only moderately successful, and with most workers give poor results, both owing to the slight adhesion resulting, and the fact that alloys of aluminium with other metals to improve its strength, colour, etc., melt at a temperature so dangerously near to the solder that in many cases the article melts itself before a junction is effected. It has been said with a good deal of truth that the lack of a really efficient solder has retarded more than anything else the wide use of aluminium in all the manufactures and arts, where its beauty, durability, and lightness give it a strong claim in almost every branch.

The property of aluminium which renders soldering so very difficult is beyond doubt its easy oxidation. Although apparently resisting oxidation very strongly, yet if we take the word of those who have studied the subject closely, this resistance is not a simple process. It is believed that the instant a clean surface of aluminium is exposed to the atmosphere it is instantly covered with an imperceptibly thin film of oxide, which being continuous and unalterable, protects the metal underneath it from further oxidation. This film of oxide acts effectually in preventing any other metal from coming in close enough contact with the aluminium beneath it, and thus soldering is prevented.

Almost every possible chemical reagent has been tried as a flux by scores of inventors, but up till recently none had been found practicable. Professor Richards then came to the conclusion that the solder should contain its own flux, so that the instant the film of oxide was removed, the solder proper would be simultaneously present to take hold of the aluminium surface at the same instant that it was cleansed from oxide. After a long series of experiments he has been successful in discovering a solder fulfilling these conditions, and the invention has been duly patented in America, Great Britain, Germany and France. There is now offered to the aluminium industry a satisfactory solution of the problem of aluminium soldering, that is, a method whose results are abreast of the latest advances in the field of producing and using aluminium. It must not be supposed that all difficulties have been completely overcome, and that care is no longer necessary. What is true, is, that with reasonable care, very satisfactory joinings can be made, not only of aluminium to aluminium, but of aluminium to brass, iron, steel, copper, German silver, &c. In samples done with the blowpipe the aluminium broke itself before the soldering.

In using the solder it is necessary that the parts to be joined shall be scraped or filed clean immediately before soldering. Heat the edges and rub the stick of solder on them until every part is coated or "tinned" with a thin layer of the solder. In this heating a clean flame is absolutely necessary, as a prime factor in these operations is cleanliness, and any soot or other dirt will probably defeat the object in view. Any surplus solder on the tinned edges should be removed by a small scraper while still hot.

For a lap joint the edges are then brought together, the soldering iron passed along and a little extra solder melted along the edge of the joint. For a joint at an angle, it is necessary that the iron be shaped to fit, so as to get it well into the corner, for the solder is not likely to adhere well, except where it is rubbed in with the iron. The tinning of the edges can also be done with iron, by first tinning the clean iron with the solder, and then rubbing strongly on the freshly scraped surfaces.

Use no flux of any description, either on the iron or on the joint. Any one who thinks that soldering aluminium is easy, and can be done by a simple modification of old methods, such as soldering tinned iron, will be quickly disappointed; for a person regularly using this solder informed Professor Richards that he finds less trouble in teaching a boy to do the work than to teach a workman experienced in soldering other metals who can with difficulty refrain from rubbing his iron in resin to make it tin, or moistening the joint with "liquor." Anything like that prevents the soldering of aluminium.

In joining aluminium with lock joint, the edges of the sheet should be coated with the solder before it is turned over, or else the solder will not soak into the joint. The effect of omitting this would be the same as making a joint in black iron, and then expecting ordinary solder to run into the joint. Common tin does not need this preparation of the edges before soldering, because the whole sheet is already tinned before soldering to start with. In brief, aluminium behaves like copper, not tinned iron, and the edges *must* be prepared for soldering. The sole maker of this solder in Great Britain is Mr. W. A. Briggs, of Dundee. Joints made with this solder do not come apart after six months as several other solders do, it having been tested over a period of eighteen months and found to be perfectly durable.

NOTICES.

LONDON AGENTS.

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Paternoster Row, E.C.,

On usual trade terms.

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Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

Correspondence.

"We do not hold ourselves responsible for the opinions expressed by our correspondents."

ANSWERS TO CORRESPONDENTS.

G.R.—The position in the present day is a very onerous and responsible one. Three years at Owens College, followed by three years practical experience gained by gratuitous services in a good works should enable one to qualify for the post. It is also advisable to take the examination for the A. I. C. at the end of the first three years, so as to be entitled to the F. I. C. at the end of the next three years.

E.L.P.—This week.

A. P.—We have pleasure in forwarding you same.

F.S.—We trust the information suited your purpose.

F.Bros.—We shall take the opportunity of so doing in due course.

N.W.L. Co.—We were sorry we could not send more, but there has been a run on them.

P.E. Co.—The matter shall receive our attention shortly.

THE CONSTRUCTION OF SODIUM SULPHIDE FURNACES.

(To the Editor of the Chemical Trade Journal.)

DEAR SIR,—I should be glad to learn from any of your readers through the medium of the *Chemical Trade Journal* what is the best material to employ in constructing the floor of a furnace for making sodium sulphide. I find that bricks, fireclay, and mortar are all attacked. Would a cast iron plate be suitable?

Yours, etc.,

"INQUIRER."

Trade Notes.

EXPENSIVE "GROGGING."—At Belfast, on Monday last, fines amounting to £450. were imposed in nine convictions against wholesale spirit merchants and publicans for breaches of the new "grogging" regulations.

A PETROLEUM RING.—A petroleum ring has been formed by the oil refiners of Galicia and Hungary, the avowed object of which is to limit production. As a matter of fact, however, the purpose the ring is to serve is to raise the price, a scheme which has already partially succeeded, the latter having risen by 3s. 4d. per cwt.

THE GLASGOW WATER SCHEME.—The Glasgow Corporation Water Committee have decided to recommend the acceptance of the tenders of Messrs. Morrison and Mason, Glasgow, first for the Blackrigg section of the improved Glasgow water scheme for £86,000., and secondly that for the Glasgow Bridge for £15,000.

A DESTRUCTIVE FIRE.—Damage to the extent of £1,500. was done by a fire which occurred this week at the Kingston Shipbuilding Yard, Port Glasgow, owned by Messrs. Russell and Co. A long row of wooden buildings used as carpenters' storerooms, spar shed, paint store, etc., were destroyed.

"A TRIFLING PROPORTION OF BUTTER."—At the Dewsbury West Riding Police Court, this week, John Braceland, provision dealer, Heckmondwike, was summoned for two offences under the Food and Drugs Act. Tenpence was paid for a pound of "butter." The chemical analysis showed the article contained "a trifling proportion of real butter." Defendant pleaded guilty, and said he told the buyer it was margarine he was selling her, and he had not labelled it, for being just before Christmas holidays he was very busy, and he had forgotten the matter. The bench imposed a fine of 44s. and costs for selling the material as butter, and 20s. and costs in addition for not labelling it as margarine, which defendant said it really was.

SOCIETY OF CHEMICAL INDUSTRY: *London Section*.—In addition to the papers already down for reading before this section, mention of which was made in our last issue, a paper will also be read by Mr. R. Warrington on "The detection and estimation of lead in citric and tartaric acids." *Liverpool Section*: On Wednesday last, February 1st, a meeting of this section was held in the Theatre of the Chemical Laboratories, University College, Brownlow-street, Liverpool. The following papers were read, Henry Brunner, Esq., being in the chair:

estimation of oxide of iron, and of alumina in mineral phosphates" by A. Smetham, Esq., F.I.C., F.C.S.; "Further applications of gas for heating," by T. Fletcher, Esq. Miscellaneous communication, "Resumé of two recently published papers on the probable origin of natural deposits of carbonate of soda," by Henry Brunner, Esq. Tea was served in the Museum from 7 to 7-30 p.m.

THE EXAMINATION OF SOAP.

By M. E. DEISS.

Results of a large number of experiments have led the author to the conclusion that soap can be easily and accurately analysed by volumetric methods. Olive oil soap, for example, is examined in the following way:—Ten grms. of soap are dissolved in 100 c.c. of 95% alcohol on the water bath, the solution immediately saturated with carbonic acid, in order to take up the free alkali, and the insoluble carbonate filtered off and washed with hot alcohol. The filtrate solution, which contains the combined alkali and the fatty acids, is diluted with a little water, a few drops of methyl orange added, and then titrated with normal hydrochloric acid. The combined alkali is found, and its amount obtained as sodium oxide (Na₂O) by multiplying the number of c.c.s. used by 0.031, whilst the fatty acids are found in the ten grms. of soap are given by multiplying by 0.280. The number, 0.280, is the saponification equivalent of the olive oil used in soap industry, and has been determined by a large number of experiments.

To determine the free alkali, the residue of sodium carbonate is dissolved in hot water, and titrated with decinormal acid, in the presence of methyl orange. The amount present in the ten grms. taken is found by multiplying the c.c.s. of acid used by 0.0053. By means of this method other additions which are insoluble in alcohol, such as talc, paraffin, etc., can also be detected.

When a soap is to be examined which has been made from a mixture of oils, the saponification equivalent to the acids contained in them must be determined. This can be done by dissolving the dried soap and acids liberated from a solution of 2 grms. of soap in 20 c.c. of alcohol and titrating with decinormal acid in the presence of phenolphthalein. The number found as the saponification equivalent is then multiplied instead of 0.280.—*Rev. Internat. des Falsificat.*

IMPROVED ASSAY OF CANTHARIDES.

The following process of assay is offered as being suitable for ordinary purposes by J. B. Nagelvoort:—

Take ten grains of the drug, in moderately fine powder, with 10 c.c. of solution (10 per cent.) of sodium hydrate to render the mixture alkaline, and digest six hours in a warm (130°F.) place until it becomes somewhat brittle; add dilute hydrochloric acid until acid reaction is retained; again dry at a low temperature (130°F.) and pulverize; transfer to a modified Soxhlet extractor and dust the powder with hot chloroform by repercolation. (50 cc. is sufficient.)

After three or four hours of percolation, evaporate or recover the solvent by distillation from the flask; add CS₂; transfer the contents to a filter and continue to wash with CS₂ as long as it takes up matter. Allow the filter to dry spontaneously; treat with hot water, collect the filtrate and pass through a small quantity of charcoal, thoroughly washing with CHCl₃, and evaporate the filtrate solution in a tared capsule; dry the residue (crystals) in a vacuum over H₂SO₄ (cantharidin being volatile at 212°F.) to a constant weight and weigh as cantharidin. Yield 1 per cent. on an

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is no change to report in the benzol market, and most other markets are without change. There is nothing fresh to report in the A, and business in B quality seems to have taken place at

The sulphate of ammonia market closes a little quieter, but this can only be temporary, as a very considerable quantity will be purchased for February delivery. There are several parcels (from London principally) to weaken prices in order to secure parcels on easier terms than can be done to-day, but seeing the quantities that are available, some difficulty will be experienced in doing this purpose. Quotations vary at all ports from £10.

8s. 9d. to £10. 10s. An error crept into last week's market report after the proofs had left the Editor, and sulphate of ammonia was erroneously valued at £10. 17s. 6d. instead of £10. 7s. 6d. We would be obliged if our readers who bind their journals would make the necessary correction in last week's Tar and Ammonia Products Report, and also in the Prices Current.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is no change to report during the past week in prices of soda ash or caustic. There is a fair average demand for these products, and market quotations are 1¼d. to 1½d. per degree, f.o.r. for Leblanc ash. For ammonia alkali, 58%, 1½d. to 1¾d. per degree. The prices are subject to variations in different localities. The prices for caustic soda are: 77%, f.o.b. Tyne, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 66%, £8. 5s., 10 ton lots and upwards. Soda crystals are quiet at £3. 2s. 6d. per ton. Chlorate of potash and soda, still scarce and in good request, and prices firm at 8½d. and 9½d. respectively. Bleaching powder, £7. 10s. nett, f.o.r. makers works, and there is a strong demand for export. Recovered sulphur still at £4. 5s., f.o.r. makers works. Roll sulphur, barrels, £6. 5s., and flowers of sulphur, £8. 5s. to £8. 10s. Sulphate of copper remains quiet at £16. to £16. 5s. Acetates of lime, brown and grey, are somewhat easier on the spot, but firm for forward delivery. White sugar of lead, £25. 10s. to £26., c.i.f. Nitrate, quiet at £20. Carbolic crystals, firm in price at 7¼d. to 8d. for 39/40°. Liquid carbolics are still in strong demand. Aniline oil and aniline salt are without further alteration at 7½d. and 6¾d. respectively. White powdered arsenic is a firm market for spot or forward delivery at £13. c.i.f. Oxalic acid has only a small demand at 3¼d. Potash caustic and carbonate are well sold and prices firm. Sulphocyanides, neglected. Yellow prussiate of potash, 9¾d. Chloride of zinc still depressed owing to lack of orders, and same cause affects the position for chemicals generally employed in the textile trades.

REPORT ON MANURE MATERIAL.

During the week there has been a good enquiry for all kinds of manure material, and a fair amount of business has been done.

Florida phosphate rock, 75/80%, offers at 8d. per unit, in cargoes, c.i.f. to U.K., but that is probably a shade above actual value for prompt or early shipment. For summer and autumn shipment sellers are rather firmer in their ideas. South Carolina river rock is held for 6½d. per unit, and Florida Peace River rock is quoted 7d. per unit, in cargoes, c.i.f. to U.K. Florida land pebble rock, 70%, also offers at 7d. per unit, but does not appear to find a ready sale therewith.

River Plate cargoes of bones are held for £4. 2s. 6d. per ton, U.K. or Continent, but we do not hear of any business. Crushed Kurrachee bones offer at £4. 2s. 6d. per ton, for shipment, but on spot £4. would be accepted, ex quay. £4. 5s. per ton asked for Bombay Bone Meal for shipment, but £4. 2s. 6d. nearest value of anything near at hand. On spot £4. 5s. to £4. 15s. per ton, according to quality required.

There has been a large business in Nitrate of soda, and the market closes at 9s. 6d. per cwt. for ordinary, and 9s. 7½d. for refined, on spot. Due cargoes are worth 9s. 4½d. to 9s. 5¼d. per cwt. according to size, ordinary quality, and 9s. 6d. paid for a small cargo of refined. November-December shipments are worth 9s. 5¼d. to 9s. 6d. per cwt.

There is still demand for dried blood for export, and closing value is 10s. 9d. per unit, in double bags, f.o.b. Liverpool.

THE LIVERPOOL MINERAL MARKET.

There is a steady market in minerals at the following currencies:—Manganese: Prices firm, with continued tendency to advance. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) steady; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) in good demand; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals continue small; demand good, both for prompt and forward. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda,

and tungsten metal in good demand, and prices are firm. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is in strong demand, and sales of Lagos have been made at £26. There is very little offering, and prices are consequently firm, £26. 10s. now being asked for Lagos, and £26. 5s. for Bonny. Olive is enquired for pretty freely, and there has been a fair business doing in Neapolitan at £39. to £42., according to quality, and in Candia at £36. to £37. per tun. Linseed is firm, with a stronger demand, but, so far, prices continue at 20s. 3d. to 20s. 6d. in export casks. Cottonseed, after a brief relapse, has picked up again, and continues to advance in price, 24s. 6d. being to-day's quotation. Castor oil, though rather dull during the week, is to-day, firmer, good seconds Calcutta being at 2½d. whilst first pressure French is steady at 2½d. to 2½d. In tallow, owing to the excessively small quantities offering, prices are virtually nominal, 30s. to 32s. 6d. being the price of North American. Resin common at 3s. 10d. per cwt. cwt., in conjunction with the other grades at their respective prices, has been moving quietly during the week. Spirits of turpentine have been in fair demand at 24s. 3d. to 24s., the latter figure is perhaps the nearest value to-day. Petroleum steady, American 5¼d. to 6¼d., Russian refined, 4½d. to 4¾d.

COLOURS.—Quiet. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there is still a strong demand for bleaching powder, which commands fully £7. 15s., f.o.b. Tyne, net; soda crystals, dull at £2. 12s. 6d. per ton. special prices according to destination; caustic soda quiet, sulphur lower at £4. 5s. and £4. 7s. 6d. net.

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 7s. 6d. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 8¼d. and 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 5s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; hydrate of barium, £10. per ton nett.

South Durham salt unaltered at 10s. 1d. per ton f.o.b. Tees., demand rather better.

Coals: Trade to-day is dull and on Newcastle Exchange prices are easier. Best Northumbrian steam is quoted 8s. 9d. per ton f.o.b. Tyne, but sales are said to have been made at a lower figure. Small steam, quiet, at 3s. 3d. and 3s. 6d. per ton. Gas coal though still in good demand is weaker, present quotation may be said to be 6s. and 6s. 3d. per ton, though it varies with position etc., of colliery. Bunker coal flat at 6s. 6d. per ton for good quality. Coke steady at 15s. per ton f.o.b. In Northumberland the coal owners are agitating for a reduction in wages to the extent of 7½%. At a meeting of the owners

and representatives of the miners on Saturday last, the latter urged that a less reduction should be asked for, and after some discussion the owners agreed to be satisfied with a reduction of 5% on the present rate of wages. A ballot will be taken as to whether the reduction be agreed to or resisted.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 45s. 1d. cash. Middlesbrough 35s. 3d. cash, and Hematite 45s. 9d. cash. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 3s. 9d. to £45. 11s. 3d. cash, and £45. 13s. 9d. to £46. 1s. 3d., three months. Tin easier. Straits closed at £91. 17s. 6d. to £92. 7s. 6d. cash, and £92. 5s. to £92. 15s. three months. Australian, £92. 7s. 6d. cash. English ingots, £96. Lead quiet: Spanish, £9. 15s. to £9. 16s. 3d. English £9. 17s. 6d. to £10. Silesian spelter: Ordinary, £17. 5s. Quicksilver: First hands, £6. 5s., second hands, £6. 4s. 9d. Copper shares unchanged: Cape, 1½ to 1¾. Copiapo, 2½ to 2¾. Libiola 3¾ to 3¾. Mason and Barry, 2¼ to 2¼. Rio Tinto, 15¼ to 15¾. Tharsis, 4¼ to 4¼. Namaqua, ¾ to 1; Panulcillo ¼ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Demand for manufactured iron slightly better; sheets and bars more active. Marked bars £7. 10s., merchant iron £6. to £6. 10s., common bars £5. 10s. to £5. 15s., hoops £6. to £6. 5s. export, £6. 10s. home consumption. Sheets, £6. 15s. to £7. singles, and £7. to £7. 5s. doubles. Pigs rather more demand; Derbyshires 42s. 6d. to 44s.; common Staffordshire 36s. to 37s., best 57s. 6d. to 60s.

GLASGOW, WEDNESDAY.—Market idle, with small business. Scotch done at 45s. cash; closing with buyers at 45s. 1d. cash, and sellers ask 45s. 3d. Middlesbrough closes with buyers at 35s. 3d. cash; sellers ask 35s. 4½d. Hematite closes with buyers at 45s. 9d. cash; sellers ask 46s. 1½d.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

In the ordinary staples there is no change from the late comparative stagnation, but the long standing firmness of tone in bleach is still fully maintained; chlorate of potash and nitrate of soda are also still in increased demand and slightly stiffer in price. The others remain as before.

Sulphate of ammonia has steadily held to the late upward movement, and the spot value now is £10. 10s., business having been done at that money. There is no report of any new forward buying, but there are some deliveries over February and March pre-arranged for, at what is now the prompt price.

Business within the mineral oil and paraffin section is at least no worse on the whole, and a somewhat large amount of it is passing, although the season for burning oil is drawing on to its close. Low gravity lubricating oil (86°) is in rather firmer request, and makes a further rise, while the other gravities are steady. Naphtha is weaker, and has dropped another farthing, solid paraffines unchanged. The proposed amalgamation of the remaining mineral oil companies is held by the higher authorities as a mere dream. Mr. Bedford, head director of the Standard Oil Co., of America, is to be in this country next week, but no hope of patching up the ruptured scale and wax agreement is estertained.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 74°, £10. 10s. 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 30s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¼d., less 5% Liverpool; nitrate of soda, 9s. 7½d.; sulphate of ammonia £10. 10s. f.o.b. Leith; salammmonic, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¼d. per lb.; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. according to quality at works, for Scotch buyers (English sales about ½d. lower); ditto (lubricating), 86°, £3. 10s., to £3. 15s. 88°, £4. 5s. to £5. 15s. and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 6,200 bags.

New Companies.

Infloer Machine Oil Co., Limited—CAPITAL £2,000. in £5. es. This company has been formed to refine, dress, and manipulate deal in oil, paste, packing, and substances of all kinds.

Warwick Bridge Dyeing and Bleaching Co., Limited—CAPITAL £100. in £1. shares. This company has been formed to purchase take over the dye and bleach works hitherto carried on by Messrs. Adell and Sons, and to carry on the business of bleachers, dyers and driers of wool, cotton yarn, etc.

von Manure Co., Limited—CAPITAL £50,000. in shares of £1. each. This company has been formed with a view to acquire and carry on the business of sulphuric acid and chemical manure manufacturers. The subscribers to the memorandum of association are: M. Turner, Clifton, Bristol, chemical manufacturer; E. A. Edwards, Clifton, chemical manufacturer; E. Sainsburg, Clifton, chemical manufacturer; J. L. Turner, Bristol, corn merchant; C. J. Ryland, Clifton, accountant; R. J. G. Bagsall, Bristol, solicitor; W. B. Gifford, Bristol, chemical manufacturer.

L. Seaton & Co., Limited—CAPITAL £60,000. in £10. shares. This company has been formed to take over the business formerly carried on by J. L. Seaton and Co., at Hull, and to engage in business as boiler makers and refiners, seed crushers, distillers, and dealers in oil, turpentine, and tar, etc. The subscribers to the memorandum of association are: E. F. Ingleby, Kirk Ella, Yorks., oil merchant; E. Ingleby, Hull, oil merchant; E. W. Ingleby, Hull, oil merchant; E. Ingleby, Kirk Ella, married woman; M. A. Ingleby, Hull, married woman; M. H. Ingleby, Hull, married woman; G. W. Ingleby, Hull, merchant's clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Chemical Laboratory, under the immediate supervision of George Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR LETTERS PATENT.

Complete Hydraulic Main Valve for Gas, Tar, Ammonical and other Liquors. F. S. Cripps. 906. Jan. 16th.
 Official Chemical Production of Ozone. L. Girerd. 919. Jan. 16th.
 Drill and Manure Drill. H. Wartze. 936. Jan. 16th.
 Compressors for Raising Fluids in Mines, etc. E. Evans, W. Veitch and G. Veitch. 939. Jan. 16th.
 Colouring Matters. O. Imray. 957. Jan. 16th.
 and Stone Cutting Machinery. T. Heppel, W. Patterson and J. G. Patterson. 988. Jan. 17th.
 Grinding Corundum Wheels and Grindstones when in Motion. H. Knight. 998. Jan. 17th.

Apparatus for Producing Water Gas and Hydrogen. W. Young and R. Young. 1,017. Jan. 17th.
 Machines for Distributing Manure. J. Wetter. 1,047. Jan. 17th.
 Improvement in Drying Apparatus. J. U. Askham. 1,050. Jan. 17th.
 Improvements in Steam Generators. A. S. Bower. 1,051. Jan. 17th.
 Apparatus for Moving Impurities in Water. W. Shedlock. 1,052. Jan. 17th.
 Improvement in Blowers and Smoke Consuming Apparatus. M. R. Rouble. 1,089. Jan. 18th.
 Lids for Self-Sealing Retort Mouthpieces. W. A. Laurie. 1,092. Jan. 18th.
 Manufacture of Refined Indigo. S. J. Simpkin. 1,113. Jan. 18th.
 Extraction of Gold and Silver from Ores. C. M. Pielsticker. 1,116. Jan. 18th.
 Improvements in Filtering Apparatus. W. P. Thompson. 1,124. Jan. 18th.
 Utilizing Liquors Containing Sulphate of Alumina or Ferric Sulphate. L. Tralls and E. Burmeister. 1,138. Jan. 18th.
 Producing Sodium Carbonate and Sodium Bicarbonate from Electrolytically Produced Metallic Sodium or Metallic Sodium Vapour. J. B. Petrie. 1,168. Jan. 19th.
 Improvements in Domestic Fire Places. H. Wright and W. Smith. 1,169. Jan. 19th.
 Washing and Scouring Textile Fabrics. J. D. Asquith. 1,172. Jan. 19th.
 Improvements in Fuel. H. R. Stockman. 1,175. Jan. 19th.
 Improved Ring for Suspending Filter Bags. R. W. Andrews. 1,197. Jan. 19th.
 Treating Manganates for the Production of Permanganates to be used for Disinfectants, &c. W. J. Menzies. 1,213. Jan. 19th.
 Improved Apparatus for the Manufacture of Bleaching Powder. E. K. Muspratt, A. Carey, and V. C. Driffeld. 1,214. Jan. 19th.
 Improved Process for Dyeing Wood. E. Edwards. 1,220. Jan. 19th.
 Secondary Batteries. H. H. Lloyd. 1,229. Jan. 19th.
 Separating Empyreumatic Products of Spirits of Wine for Rectification. F. W. Golby. 1,235. Jan. 20th.
 Improvements in Setting Gas Retorts. W. P. Gibbons and R. Masters. 1,269. Jan. 20th.
 Manufacture of Monosulphonated Anthracene Acid by the Direct Sulphonation of Anthracene. J. Imray. 1,280. Jan. 20th.
 Purifying Water. C. Schmidt and E. Loh. 1,297. Jan. 20th.
 Manufacture of Ferric Chloride. P. Buisine. 1,298. Jan. 20th.
 Separation and Purification of Colouring Matter from Crude Cottonseed Oil. E. S. Wilson, Ebenezer Stewart and R. Hunt. 1,320. Jan. 21st.
 Anti-Frictional Bearings. H. Hills. 1,328. Jan. 21st.
 Improvement in Indigo Dyeing. A. Schloesser and H. A. Mavor. 1,342. Jan. 21st.
 Purifying Oils and Apparatus therefor. F. N. Turney. 1,349. Jan. 21st.
 Improvements in Air Propellers. C. Myers and R. Clarke. 1,363. Jan. 21st.
 Stone and Mineral Breaking Apparatus. T. Whitaker. 1,366. Jan. 21st.
 Treatment of Rhea Fibre and other Grasses. H. C. Fellowes, W. R. Crozier, and H. Ferguson. 1,380. Jan. 21st.
 Moistening and Ventilating Apparatus. G. Josephy. 1,381. Jan. 21st.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

A. CASWELL, W. DEALTREV AND H. LEWIS, under the style of the Caswell and Dealtrey Royal Blacking Co., Christ-Church St., Chelsea and Bruton-News, North; as far as regards H. Lewis.
 R. LEVI AND J. LEVI, under the style of R. Levi and Bro. Manchester, waterproof garment manufacturers.
 S. CARTWRIGHT AND M. M. DAVENPORT, under the style of Cartwright and Davenport, Whitchurch, coal, lime, and salt merchants.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.				Holland, 38				E. Indies, 92			
Week ending January 21st.				France, 2				Germany, 198			
tone—				Italy, 10				E. Indies, 970			
all—	2 pkgs.	T. Palmer		France, 20				" 306			
ance, 350 c.		Arnati & Harrison		Dyestuffs—				Indigo			
imony—				Aniline				E. Indies, 17 cts.			
san, 30 t.		L. & I. D. Jt. Co.		Melbourne, 1 pkg.				" 176			
ustralia, 4		Welch, Perrin, & Co.		Belgium, 1				" 46			
lbourne, 1		T. Merry & Son		Argols				" 32			
rica, 191		Novelli & Co.		Italy, 143 pkgs.				" 100			
estros—				Cochineal				" 10			
Russia, 450		Bailey & Leatham		Canaries, 55 pkgs.				" 93			
um Chloride—				Extracts				" 17			
rmany, 25 pkgs.		Petri Bros.		Denmark, 1 pkg.				" 3			
ytes—				Gambier				" 61			
gium, 53 cks.		Burrell & Co.		E. Indies, 108 pkgs.				" 109			
" 4		Leach & Co.									
ax—											
rmany, 2 pkgs.		L. & I. D. Jt. Co.									
ide of Iron—											
rmany, 1 pkg.		A. & M. Zimmermann									

Germany, 5	L. & I. D. Jt. Co.
E. Indies, 356	"
" 138	Elkan & Co.
" 452	Ross & Deering
" 10	Seton, Laing, & Co.
" 20	P. & O. Co.
" 62	2 cs. Allen Bros. & Co.
" 3	Ralli Bros.
" 3	Parsons & Keith
Myrabolams	
E. Indies, 1,000 pkgs.	A. Hagan
" 333	A. J. Humphrey
Saffron	
Spain, 2 pkgs.	Hodgkinson & Co.
Sumac	
Italy, 100 pkgs.	Sollas & Sons
" 800	W. Shelcott
France, 50	Williams, Torrey, & Co., Ltd.
Italy, 100	L. & N. W. Ry.
" 100	W. Barter & Co.
Tanners Bark	
Belgium, 18 t.	Leach & Co.
Italy, 3 pkgs.	M. D. Co.
Turmeric	
E. Indies, 50 pkgs.	E. Fellingham
Dyestuffs (otherwise undescribed)	
Italy, 44 pkgs.	Thames S. T. & L. Co., Ltd.
Farina	
Germany, 100 pkgs.	R. G. Hall & Co.
Gamboge	
E. Indies, 12 cs.	L. & I. D. Jt. Co.
Glucose	
Holland, 75 pkgs.	75 c. Prop. Sun Wf.
U. States, 800	800 c. Humphrey & Co.
" 190	1,100 L. Sutro & Co.
" 100	696 R. G. Hall & Co.
" 250	262 L. & N. W. Ry.
Iodine	
Germany, 4 pkgs.	A. Gibbs & Sons
Lead Acetate	
Germany, 17 pkgs.	A. Hughes
Magnesia and Potassium Bicarbonate	
Holland, 41 pkgs.	A. & M. Zimmermann
Manure	
Germany, 10 t.	T. H. Lee
Methyl Alcohol	
Germany, 25 drs.	Lister & Biggs
U. States, 200 brls.	J. Kertel
Mica	
E. Indies, 108 bls.	W. M. Smith & Sons
France, 118	Flageolet & Co.
Ochre	
Germany, 5 cs.	Phillips & Graves
France, 24 cks.	J. L. Lyon & Co.
Holland, 8 cs.	Phillips & Graves
France, 16 cks.	H. A. Litchfield & Co.
Painters' Colours	
France, 19 pkgs.	Flageolet & Co.
" 49	M. M. de France
Italy, 20	T. Hill Jones
Belgium, 14	T. Palmer
France, 1	Hernu, Peron, & Co.
Germany, 6	T. H. Lee
" 34	L. & I. D. Jt. Co.
" 30	Phillips & Graves
Paraffin Wax	
U. States, 200 brls.	H. Hill & Sons
" 2,264 pkgs.	J. H. Usmar & Co.
Germany, 45 cs.	T. H. Lee
Phosphate Rock	
France, 190 t.	D. De Pass & Co.
Plumbago	
Ceylon, 70 brls.	Doulton & Co.
Holland, 54 cks.	B. Gallaway
U. States, 500 bxs.	Beck & Pollitzer
Italy, 250 brls.	J. Thredder, Son, & Co.
Potash	
France, 273 c.	Petri Bros.
" 114	F. W. Berk & Co., Ltd.
Potassium Carbonate	
Germany, 108 c.	J. H. Wackerbarth
Holland, 202	Paton & Charles
France, 43	J. A. Reid
" 10 cks.	Beresford & Co.
" 2	Spies Bros. & Co.
Potassium Permanganate	
Germany, 20 pkgs.	H. Lorenz
Pyrites	
Spain, 1,792 t.	C. Tennant, Son, & Co.
Saltpetre	
Germany, 129 cks.	P. Hecker & Co.
E. Indies, 706 bgs.	Ralli Bros.

Soda	
Belgium, 9 cks.	Magee, Taylor, & Co.
Sodium Acetate	
France, 9 pkgs.	S. F. Waters & Co.
Stearine	
France, 286 bgs.	G. Boor & Co.
" 69	Beresford & Co.
Holland, 31	Robinson, Roberts, & Co.
Sulphur	
Italy, 5 t.	H. W. Ison
" 50	J. Greig
" 21	Union L. Co., Ltd.
" 400	Brandram Bros. & Co.
" 88	J. Kitchin, Ltd.
" 5	F. C. Devon & Co.
" 5	F. Smith
" 5	J. Puddy & Co.
" 4	Italo-Brit. S. N. Co.
Tallow	
Belgium, 2 pkgs.	G. Haller & Co.
N.S. Wales, 114 cks.	Nelson Bros.
Belgium, 6	H. Hill & Sons
Holland, 10	Phillips & Graves
Queensland, 10	Leach & Co.
" 2	Dyster, Nalder, & Co.
" 30	D. J. Keymer & Co.
" 1	Dalgaty & Co.
" 94	Brown & Elmslie
Tartaric Acid	
Holland, 20 pkgs.	B. & F. Wf. Co., Ltd.
France, 2	Middleton & Co.
" 20	B. & F. Wf. Co., Ltd.
Ultramarine	
Germany, 50 cs.	Becker & Ulrich
Belgium, 8 brls.	Leach & Co.
Holland, 8 pkgs.	W. Harrison & Co.
" 9	Haefner, Hilpert, & Co.
France, 4 cs.	Arnati & Harrison
White Lead	
Holland, 13 cks.	Spies Bros. & Co.
France, 10	J. Watt & Sons
" 46	W. Harrison & Co.
Belgium, 6	Leach & Co.
Austria, 50	Pickford & Co.
Zinc Oxide	
Holland, 50 brls.	Burrell & Co.
Belgium, 25	M. Ashby, Ltd.
Holland, 185	"

LIVERPOOL.

Week ending January 19th.

Ammonium Sulphate	
Marseilles, 8 cks.	
Borax	
Havre, 5 pkgs.	Cunard S. S. Co., Ltd.
Castor Oil	
Genoa, 20 cs.	T. Wolley & Sons
" 2	
Chemicals (otherwise undescribed)	
Rotterdam, 6 dms.	9 cks.
Colours	
Rotterdam, 2 cks.	
Cream of Tartar	
Barcelona, 5 cks.	Sachse & Klemm
" 14	
Tarragona, 7	
Dyestuffs	
Extracts	
New York, 14 brls.	
Baltimore, 10	Houston & Laurich
Bordeaux, 100 cks.	
Marseilles, 125 brls.	
Fiume, 1,607	Boucher, Bacon & Co.
" 243	De Clermont & Donner
Ghent, 100 cks.	
Madder	
Rotterdam, 4 cks.	
Smyrna, 28 bls.	
Saffron	
Valencia, 4 cs.	
Sumac	
Palermo, 475 bgs.	775 bls.
Valonia	
Eresakuei, 208 t.	W. Moore & Co.
Smyrna, 279 bgs.	J. Vivante & Son
" 2,370 ktl.	Barry Bros.
" 1,500	3,207 bgs.
Farina	
Baltimore, 1,000 bgs.	
Fiume, 109 sks.	C. J. Van der Veen & Bro.
" 360	

Glucose	
Baltimore, 500 brls.	
New York, 450	
Hamburg, 50 cks.	
Manganese	
Carthage, 1,950 t.	
Ochre	
Marseilles, 14 brls.	J. L. Cardwell & Co.
" 200	
Paint	
Marseilles, 25 cs.	
Paraffin Scale	
Baltimore, 128 brls.	
Boston, 20	
Phosphate Rock	
Brunswick, Ga., 1,593 t.	W. & W. H. Stead & Co.
Pitch	
Hamburg, 2 brls.	
Potash	
Hamburg, 7 cks.	
Potash Salts	
Hamburg, 102 bgs.	
Potassium Carbonate	
Hamburg, 12 cks.	
Rosin	
Baltimore, 400 brls.	
Charleston, 2,500	
Salt	
New York, 10 brls.	W. R. Jacobs & Co.
Soap	
Mayumba, 1 cs.	T. E. Tomlinson & Co.
Bari, 242	
New York, 3	
Soapstone	
Bordeaux, 100 bgs.	G. G. Blackwell
Soda	
Rotterdam, 2 cks.	
Tallow	
Baltimore, 100 tcs.	
" 23 hds.	Stolterfoht Sons & Co.
New York, 240	
Boston, 62 tcs.	77 Watt & Johnston
" 78	
New Orleans, 150 tcs.	
Philadelphia, 24	100 brls.
B. Ayres, 13 pps.	Las Cobeas Esta Co.
Tar	
New York, 79 brls.	
Tartar	
Bordeaux, 10 cks.	
Ancona, 1	
Tartaric Acid	
Marseilles, 10 cs.	
Rotterdam, 34 cks.	
Antwerp, 3	
Ultramarine	
Trieste, 40 cs.	
Rotterdam, 3	4 cks.
Waste Salt	
Hamburg, 102 bgs.	
White Lead	
Antwerp, 7 cks.	
Zinc Oxide	
Antwerp, 72 brls.	10 cks.

GLASGOW.

Week ending January 26th.

Alkali	
Hamburg, 53 cks.	
Bleaching Powder	
New York, 100 bxs.	
Colours	
Hamburg, 2 cks.	
Rotterdam, 4 cs.	19 J. Rankine & Son
Cream of Tartar	
Marseilles, 9 cks.	
Dyestuffs	
Indigo	
Calcutta, 153 clts.	2 bxs.
Madder	
Marseilles, 5 cks.	
Tannin	
Hamburg, 1 cs.	
Glucose	
New York, 372 brls.	
Ochre	
Marseilles, 79 cks.	
Paint	
New York, 5 brls.	1 cs.

Plumbago	
In transit, 2 pkgs.	
Potassium Prussiate	
Hamburg, 25 cks.	
Pyrites	
Seville, 250 t.	Seville Sulphur Co.
Huelva, 2,112	Tharsis Sulphur & Copper Co., Ltd.
Rosin	
New York, 957 brls.	
Baltimore, 500	
Soap	
Marseilles, 7 cs.	
In transit, 4	
Philadelphia, 375 bxs.	32 crts.
Tallow	
Newport News, 165 trcs.	J. L. Turnbull & Co.
Tar	
New York, 786 brls.	
Tartar	
Oporto, 6 cks.	
Varnish	
New York, 32 brls.	
Waste Salt	
Hamburg, 126 cks.	
Zinc Oxide	
New York, 120 brls.	

HULL.

Week ending January 21st.

Asbestos	
Flushing, 4 cs.	Wilson, Sons & Co., Ltd.
Barytes	
Antwerp, 100 bgs.	Bailey & Leatham
Chemicals (otherwise undescribed)	
Dunkirk, 38 dms.	200 bgs. Wilson, Sons & Co., Ltd.
Colours	
Rotterdam, 69 pks.	W. & C. L. Ringrose
" 6 cs.	59 cks. Hutchinson & Son
Flushing, 15	49 Wilson, Sons & Co., Ltd.
Antwerp, 1 ck.	Hanger, Watson & Harris
Cottonseed Oil	
New York, 1,800 brls.	Wilson, Sons & Co., Ltd.
Dyestuffs	
Alizarine	
Flushing, 27 cks.	Wilson, Sons & Co., Ltd.
Rotterdam, 32 cks.	Hutchinson & Son
" 74 pks.	W. & C. L. Ringrose
Argols	
Leghorn, 1 ck.	Wilson, Sons & Co., Ltd.
Madder	
Rotterdam, 1 ck.	G. Lawson & Sons
Marseilles, 2 cks.	Wilson, Sons & Co., Ltd.
Farina	
Hamburg, 100 bgs.	Wilson, Sons & Co., Ltd.
Glucose	
New York, 125 brls.	Wilson, Sons & Co., Ltd.
" 250	
Rotterdam, 9 cks.	W. & C. L. Ringrose
Mica	
Christiania, 2 cs.	Wilson, Sons & Co., Ltd.
Paint	
New York, 10 cs.	Wilson, Sons & Co., Ltd.
Boston, 100	"
Potash	
Rotterdam, 10 cks.	W. & C. L. Ringrose
Quicksilver	
Hamburg, 10 botls.	Wilson, Sons & Co., Ltd.
Salt	
Rotterdam, 13 bgs.	Wilson, Sons & Co., Ltd.

urg 3 bgs. adam, 16 cs. G. Lawson & Sons ork, 250 brls. Wilson, Sons & Co., Ltd. ne— rp, 6 bgs. 7 pks. Wilson, Sons & Co., Ltd. — lles, 5 cks. Wilson, Sons & Co., Ltd. ric Acid— dam, 2 cks. Hutchinson & Son 1 Woodhouse & Co.	Varnish— Antwerp, 3 cks. J. & T. Seddon White Lead— Antwerp, 266 cks. Bailey & Leatham TYNE. <i>Week ending January 21st.</i> Acetic Acid— Rotterdam, 85 cbys. Manganese— Aquilas, 250 t. Scott Bros. Zinc Ashes— Christiania, 21 bgs.	GOOLE. <i>Week ending January 11th.</i> Alizarine— Rotterdam, 48 brls. 30 pks. Alkali— Rotterdam, 2 cks. Caoutchouc— Boulogne, 2 cks. Dyestuffs (otherwise undescribed) Boulogne, 6 cks. 23 cs. Farina— Hamburg, 425 bgs. Potash— Rotterdam, 20 cks. Waste Salt— Hamburg, 525 cks.	GRIMSBY. <i>Week ending January 14th.</i> Chemicals (otherwise undescribed) Hamburg, 11 pks. Dyestuffs (otherwise undescribed) Dieppe, 25 cks. Farina— Hamburg, 200 bgs. Glucose— Hamburg, 10 cks. Size— Antwerp, 3 cks. Zinc Ashes— Antwerp, 22 cks.
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			Amsterdam, 5 41			Guano—			Soda Crystals—		
Week ending January 25th.			Genoa, 5 45			Jersey, 47 t. £353			Berbice, 16 c. 4 63		
			Pt. Elizabeth, 1 8			Mauritius, 49 225			Algoa Bay, 1 t. 8 5		
			Valparaiso, 5 cs. 32			Manure—			Sydney, 12 1 39		
Coal Products—						Demerara, 5 t. £78			Soda Salts—		
Allizarine			Boston, 20 cks. £265			Oporto, 9 130			New York, 3 t. 10 c. £35		
Bombay, 67 403			Anthracene			Jamaica, 5 55			Sodium Bicarbonate—		
Rotterdam, 119 cks. £674			Benzol			New York, 105 10 c. 840			Natal, 14 c. £11		
Trepport, 12 cks. £142			Jersey, 168 7,332			Cullera, 640 9 4,552			Auckland, 1 t. 6		
Rotterdam, 92 6 drs. 17 pns. 554			Calais, 10 75			Bordeaux, 31 120			Hong Kong, 10 5		
Creosote			Creosote Oil			Cape Town, 16 41			Trinidad, 10 4		
Boulogne, 1 cs. £11			Naphthalene			Auckland, 1 11			Sodium Bi-Tartrate—		
Trepport, 15 brls. £34			Pitch			St. Kitts, 4 4 38			Adelaide, 11 c. £31		
New York, 107 cks. £154			St. Nazaire, 609 t. £801			Muriatic Acid—			Sodium Carbonate—		
Antwerp, 160 1 ck. £32			Dordt, 140 196			M. Video, 1 c. £10			Lyttelton, 15 c. £5		
Terneuzen, 335 497			Pyridine			Nitric Acid—			Granada, 2 t. 1 c. £20		
Calais, 1 ck. £8			Hamburg, 20 163			Sydney, 4 cs. £8			Sodium Salicylate—		
Pyridine Bases			Stettin, 3 drs. £100			Jersey, 24 chys. 44			Melbourne, 1 c. £29		
Tar			Bombay, 20 rns. £35			Hong Kong, 1 14			Sodium Sulphate—		
New Orleans, 3,000 cks. £1,800			Rotterdam, 35 pkgs. £150			Wellington, 6 63			Ghent, 60 t. £90		
Toluol			Coal Products (otherwise undes'd.)			Oxalic Acid—			Sodium Tartrate—		
Boston, 6 pkgs. 6 cks. £247			Copper Sulphate—			Newcastle, 1 t 2 c. £31			Melbourne, 5 pkgs. £17		
Mangalore, 12 c. £69			Bombay, 10 t. 157			Phosphate—			Strontium Nitrate—		
Constantinople, 1 5 21			Bordeaux, 5 85			Azores, 3 t. £15			Calcutta, 13 c. £19		
Genoa, 12 10 200			Colombo, 9 8			Phosphate of Lime—			Grenada, 2 1 20		
Venice, 8 140			Dunedin, 1 16			Martinique, 50 t. £457			Strontium Nitrate and Barium Nitrate—		
Otago, 2 32			Trepport, 5 90			Phosphorus—			Bombay, 1 t. 3 c. £34		
Cream of Tartar—			Lyttelton, 1 t. £85			Oporto, 5 c. £35			Barbadoes, 2 t. £17		
Natal, 10 c. 41			Melbourne, 3 10 c. 335			Antwerp, 1 cs. 10			Magellan, 23 13 c. 216		
Dunedin, 4 16			Sydney, 4 4 345			Hong Kong, 1 14			Santos, 50 kgs. 21		
Auckland, 10 44			Disinfectants—			Wellington, 6 63			Bahia, 10 5		
Cape Town, 8 pkgs. £14			Sydney, 17 cs. 93			Potash Crystals—			Sulphuric Acid—		
Oporto, 12 c. 22			Trinidad, 1 t. 15 58			Sydney, 3 c. £25			Algoa Bay, 9 t. £30		
Antigua, 13 18			Hong Kong, 100 drs. 23			Potassium Bichromate—			Superphosphate—		
Bombay, 20 199			Hamburg, 25 cks. 125			Constantinople, 15 c. £31			Cherbourg, 450 t. 19 c. £1,379		
Adelaide, 3 19			Melbourne, 22 83			Hong Kong, 4 cks. 11			Auckland, 20 5 51		
Dried Blood—			Mauritius, 99 t. 15 c. £800			Potassium Chlorate—			Tartaric Acid—		
E. London, 1 t. 16 c. £20			Flowers of Sulphur—			Calcutta, 2 c. £7			Lyttelton, 8 c. £46		
Natal, 1 10			E. London, 1 t. 16 c. £20			Bombay, 13 54			B. Ayres, 5 cks. 55		
Soda—			Mauritius, 99 t. 15 c. £800			Potassium Cyanide—			Sydney, 1 t. 14 178		
Cape Town, 1 t. £7			Mauritius, 99 t. 15 c. £800			Madras, 2 cs. £17			Kurrachee, 15 84		
Algoa Bay, 2,725 454			Mauritius, 99 t. 15 c. £800			Shanghai, 5 cks. 25			Karachi, 6 cs. 4 20		
Pt. Elizabeth, 55 pkgs. 35 bxs. 224			Mauritius, 99 t. 15 c. £800			Natal, 117 pkgs. 19			Melbourne, 2 15 281		
Magellan, 65 4 cks. 224			Mauritius, 99 t. 15 c. £800			Calcutta, 11 c. 11			Adelaide, 2 13 227		
Soda—			Mauritius, 99 t. 15 c. £800			Sulphuric Acid—			Auckland, 10 51		
Cape Town, 1 t. £7			Mauritius, 99 t. 15 c. £800			Algoa Bay, 9 t. £30			Tartaric and Citric Acids—		
Algoa Bay, 2,725 454			Mauritius, 99 t. 15 c. £800			Superphosphate—			Sydney, 10 kgs. £65		
Pt. Elizabeth, 55 pkgs. 35 bxs. 224			Mauritius, 99 t. 15 c. £800			Cherbourg, 450 t. 19 c. £1,379					
Magellan, 65 4 cks. 224			Mauritius, 99 t. 15 c. £800			Auckland, 20 5 51					

Alum Cake—				Chloroform—				Matadi,			
Calcutta,	5 t.	2 q.	£15	Boston,	25 kgs.			Santiago,	2 cs.		35
Alumina Sulphate—				Coal Products—				Monrovia,			
M. Video,	10 t.		£52	Alizarine				Mossel Bay,			
Aluminous Cake—				Aniline Colours				Robertsport,			
Calcutta,	11 t. 6 c.	3 q.	£50	Lisbon,	2 cks.			Antwerp,	20	20	5
Dunedin,	3	14	16	Boston,	2 kgs.			Beyrout,	17		11
Ammonium Carbonate—				Aniline Oil				Bilbao,			
Bahia,	3 c.	3 q.	£9	Boston,	25 cs.			Boston,	12	48	7
Ammonium Chloride—				Aniline Salts				Cabenda,			
Vigo,	4 c.	3 q.	£8	New York,	16 cks.			Cavite,	5		3
B. Ayres,	1 t. 10		45	Barcelona,	7 dms.			Guayaquil,	40		
Alexandria,	10		17	New Orleans,	5			Lisbon,	20	20	
Philadelphia,	15	4	345	Rouen,	21			M. Video,	25 cs.	33	
Vera Cruz,	15		25	Pitch				Rotterdam,			
Ammonium Sulphate—				St. Domingo,				Sherbro,			
Rouen,	5 t. 2 c.		£26	Nantes,	85 t.			Valparaiso,	7	7	
Venice,	20		200	Sierra Leone,	8 brls.			Painters' Colours—			
Cadiz,	1		11	Tar				Ceara,	10 kgs.	1 brl.	
New York,	153	13	3 q.	Valencia,	2 q.	£6		Iquique,	56		
Tagal,	61	10	623	Cobalt Oxide—				Lisbon,	1	8 cks.	
Genoa,	40		400	Colours—				Maracaibo,	6		
Barcelona,	51	2	521	B. Ayres,	2 brls.			New York,	28	20 brls.	5
Bordeaux,	10		105	Valleyfield,	1 kg.			Pernambuco,	4		37
Rotterdam,	50	10	525	Copperas—				Rotterdam,	4		
Baltimore,	25	5	257	Beyrout,	4 t.	2 q.	£8	Akassa,	13		
Sourabaya,	174	10	3	Valencia,	15 c.	2		Bahia,	50	29	
Valencia,	78	8	1	Rio de Janeiro,	1	13	4	Capetown,	1 cs.	18	
Anhydrous Ammonia—				Copper Sulphate—				Havana,	2 tcs.	1	
Manila,	3 c.		£32	Rouen,	20 t.		£310	Manaos,	9	6	
Antimony—				Disinfectants—				M. Video,	2 cs.	2	
San Louis,	1 ck.			Rosario,	12	1 c.	1 q.	Para,	38 tcs.	1 cs.	50
Antiseptic—				Guano—				Porto Alegre,	20	23	1
Rio de Janeiro,	2 t. 9 c.	1 q.	£50	Lisbon,	4	18	74	Saa Juan,	1	10 cs.	
Asbestos—				Iron Sulphate—				Talcahuano,	2		
Lisbon,	1 cs.			Alexandretta,	8		7	Tientsin,	2		
Manaos, 4 bgs.				B. Ayres,	14	19	235	Valparaiso,	11 cks.	5	16
Talcahuano,	2			Bari,	2	5	34	Vigo,	5		
Bleaching Powder—				Lime—				Paraffin Wax—			
Baltimore,	68	cks.		C. C. Castle,	1 t. 18 c.		£10	Ferrol,	10 cs.		
Boston,	279			Old Calabar,	10		9	Venice,	19 bgs.		
Havana,		22 brls.		Litharge—				Barcelona,	44		
New York,	431			Lisbon,	1 ck.			Cephalonia,	16		
Philadelphia,		50 cs.		Rouen,	6 cks.			Odessa,	10		
Puebla,		10 dms		Magnesium Carbonate—				Smyrna,	6		
Hamburg,	50			B. Ayres,	30 cs.			Phosphorus—			
Baltimore,	80 t. 11 c.		£686	Rio de Janeiro,	5			Havana,	12 cs.	£152	
New York,	71	1	604	Magnesium Sulphate—				Santiago,	2	29	
Boric Acid—				Manure—				Hiogo,	54	680	
Portland, M.,	19 c.	1 q.	£38	Demerara,	5 kgs.			Plumbago—			
Borax—				Mineral White—				Rio de Janeiro,	1 ck.		
London, Ont.,	11 c.	1 q.	£15	New York,	50 bgs.			Potash Salts—			
Sydney,	2 t.		61	Oxalic Acid—				Boston,	3 t. 2 c.	£279	
Matanzas,		10	3	Marseilles,	1 t. 3 c.	£30		Potassium Bichromate—			
Antwerp,	5	6	105	Paint—				Havana,	3 c. 2 q.	£15	
Cadiz,	9	2	15	Abonnema,	10 pkgs.			B. Ayres,	10	20	
Calcium Chloride—				Phosphorus—				Rio de Janeiro,	17	36	
Bermuda,	4 t. 17 c.		£12	Bahia,	1 cs.	35		Potassium Carbonate—			
Antwerp,	10	4	20	Bakana,	7 brls.			Rio de Janeiro,	10 c.	£10	
M. Video,	2		5	Cadiz,	75 dms.			Potassium Chlorate—			
Toronto,	12	10	28	Calcutta,	50	1	144	Boston,	3 t. 15 c.	£216	
Rosario,	2	1	5	Rocheport,	764	15	2,163	Gothenburg,	5	330	
Compana,	17	12	40	Valencia,	40	16	2	Vigo,	1	19	
Carbolic Acid—				Soda Alkali—				Oporto,	4	1,133	
Rotterdam,	30 t. 10 c.		£712	Genoa,	9 cs.			New York,	20	4	
Caustic Soda—				Soda Ash—				Malta,	1	49	
Algoa Bay,	44 cs.			Halifax,	10			Naples,	2	10	
Amsterdam,	90 dms.			Half Jack,	1			Antwerp,	2	14	
Barcelona,	250			Havana,	20 pkgs.			Yokohama,	5		
Bari,	162			Lagos,		52		Hiogo,	7	10	
Bremen,		5 brls.		Manaos,	6			Stettin,	4		
Messina,	36			Matanzas,				Rotterdam,	4		
Naples,	78			New Orleans,	40			Danzig,	2	10	
New York,	625			Old Calabar,	12			Copenhagen,	2	10	
Progresso,	20			Opobo, 11 pkgs.				Hamburg,	3		
Sydney,		3 bxs.		Rio de Janeiro,	54			Potassium Silicate—			
Tarragona,	60			St. Domingo,	51			Valencia,	7 t. 15 c.	£46	
Yokohama,	350			Salt—				Amsterdam,	1	4	2 q.
Boston,	75			Calcutta,	2,964 t.			Potassium Stannate—			
Carril,	6			Hamburg,	5			Bombay,	1 t. 6 c.	£113	
Ghent,	21			Kingston, Jam.,	5			Potassium Sulphate—			
Hiogo,	100			Lagos,				Cadiz,	6 c.	£4	
La Plata,	200			Manaos,				Salt—			
Manilla,	50			Matanzas,				Calcutta,	2,964 t.		
Montreal,		5		New Orleans,	40			Hamburg,	5		
Natal,	16 cs.			Old Calabar,	12			Kingston, Jam.,	5		
Odessa,	50			Opobo, 11 pkgs.				Lagos,	200		
Oporto,	28			Rio de Janeiro,	54			Loango,	29		
Philadelphia,		25 brls. 1 cs.		St. Domingo,	51			Old Calabar,	300		
Seville,	36			Salt—				Harbour, Kingston,	20 t.		
Chemicals (otherwise undescribed)				Salt—				Portland, M.,	52		
Alexandria,	4 t.		£135	Calcutta,	2,964 t.			Rio Grande do Sul,	1		
Marseilles,	1	10 c.	49	Hamburg,	5			San Francisco,	163 3/4		
Bari,	12		20	Kingston, Jam.,	5			Sydney,	627 t.		
China Clay—				Salt—				Accra,	5		
Barcelona,	32 t. 14 c.			Calcutta,	2,964 t.			Algoa Bay,	8	18 c.	
Bombay,	12			Hamburg,	5			Antwerp,	75		
Boston,	415			Kingston, Jam.,	5			Bahia,	15		
Calcutta,	128	cks.		Lagos,				Benin,	5	7	
Gothenburg,	10			Manaos,	6			Boston,	100		
Lisbon,	120			Matanzas,				Copenhagen,	202		
Chloroform—				Salt—				Gr. Bassa,	4		
Boston,	25 kgs.			Calcutta,	2,964 t.			Iquique,	9		
Coal Products—				Salt—				Jones River,	25		
Alizarine				Salt—				Landana,	5		
Lisbon,	2 cks.			Calcutta,	2,964 t.			Salt—			
Aniline Colours				Salt—				Calcutta,	2,964 t.		
Boston,	2 kgs.			Hamburg,	5			Hamburg,	5		
Shanghai,	25 cs.			Kingston, Jam.,	5			Lagos,	200		
New York,	16 cks.			Lagos,				Loango,	29		
Aniline Oil				Salt—				Old Calabar,	300		
Barcelona,	7 dms.			Calcutta,	2,964 t.			Harbour, Kingston,	20 t.		
New Orleans,	5			Hamburg,	5			Portland, M.,	52		
Rouen,	21			Kingston, Jam.,	5			Rio Grande do Sul,	1		
Aniline Salts				Salt—				San Francisco,	163 3/4		
Barcelona,	47 cks.			Calcutta,	2,964 t.			Sydney,	627 t.		
New York,	65			Hamburg,	5			Accra,	5		
Pitch				Salt—				Algoa Bay,	8	18 c.	
Barcelona,	47 cks.			Calcutta,	2,964 t.			Antwerp,	75		
New York,	65			Hamburg,	5			Bahia,	15		
Sierra Leone,				Salt—				Benin,	5	7	
Nantes,	85 t.			Calcutta,	2,964 t.			Boston,	100		
Sierra Leone,	8 brls.			Hamburg,	5			Copenhagen,	202		
Tar				Salt—				Gr. Bassa,	4		
St. Domingo,	30 t.			Calcutta,	2,964 t.			Iquique,	9		
Cobalt Oxide—				Salt—				Jones River,	25		
Valencia,	2 q.	£6		Calcutta,	2,964 t.			Landana,	5		
Colours—				Salt—				Calcutta,	2,964 t.		
B. Ayres,	2 brls.			Hamburg,	5			Hamburg,	5		
Valleyfield,	1 kg.			Kingston, Jam.,	5			Lagos,	200		
Copperas—				Salt—				Loango,	29		
Beyrout,	4 t.	2 q.	£8	Calcutta,	2,964 t.			Old Calabar,	300		
Valencia,	15 c.	2		Hamburg,	5			Harbour, Kingston,	20 t.		
Rio de Janeiro,	1	13	4	Kingston, Jam.,	5			Portland, M.,	52		
Copper Sulphate—				Salt—				Rio Grande do Sul,	1		
Rouen,	20 t.		£310	Calcutta,	2,964 t.			San Francisco,	163 3/4		
Rosario,	12	1 c.	1 q.	Hamburg,	5			Sydney,	627 t.		
Lisbon,	4	18	235	Kingston, Jam.,	5			Accra,	5		
Alexandretta,	8		74	Lagos,				Algoa Bay,	8	18 c.	
B. Ayres,	14	19	235	Loango,	29			Antwerp,	75		
Bari,	2	5	34	Old Calabar,	300			Bahia,	15		
Venice,	5	9	81	Harbour, Kingston,	20 t.			Benin,	5	7	
Ghent,	9	18	156	Portland, M.,	52			Boston,	100		
Bordeaux,	50	1	765	Rio Grande do Sul,	1			Copenhagen,	202		
Trieste,	10	1	152	San Francisco,	163 3/4			Gr. Bassa,	4		
Genoa,	42	6	639	Sydney,	627 t.			Iquique,	9		
Palermo,	19	19	3	Accra,	5			Jones River,	25		
Antwerp,	1	10	3	Algoa Bay,	8	18 c.		Landana,	5		
Ancona,	9	19	145	Bahia,	15						
Marseilles,	152	12	2,363	Benin,	5	7					
Valparaiso,	10	16	3	Boston,	100						
Algiers,	24	19	357	Copenhagen,	202						
Disinfectants—				Salt—							
Shanghai,	4 cs. 28 dms.		£53								
Guano—				Salt—							
Valencia,	50 t.		£350								
Iron Sulphate—				Salt—							
Calcutta,	18 t. 3 c. 3 q.		£33								
Smyrna,	4	17	1								
Alexandretta,	6	5	10								
Lime—				Salt—							
C. C. Castle,	1 t. 18 c.		£10								
Old Calabar,	10		9								
Litharge—				Salt—							
Lisbon,	1 ck.										
Rouen,	6 cks.										
Magnesium Carbonate—				Salt—							
B. Ayres,	30 cs.										
Rio de Janeiro,	5										
Magnesium Sulphate—				Salt—							
Demerara,	5 kgs.										
Manaos,	10 brls.										
Manure—				Salt—							
Guayaquil,	1 t.		£30								

Calcutta, 10	
Dunedin, 68	
Hamilton, Ont., 600	
Kingsey, 80	
Kobe, 115	
Napanea, 12	
New Glasgow, 13	
Pernambuco, 216	
Rio de Janeiro, 60	50
Santander, 21	
Sherbrooke, 192	
Toronto, 13	
Wellington, 20	
Soda Crystals—	
Boston, 280 cks.	
St. John's, Nfld., 2 cs.	
Sourabaya, 350 kgs.	
Algoa Bay, 100 brls.	
Calcutta, 14	
Halifax, 10	
New York, 280	
Pt. Lyttleton, 34	
Salonica, 35	
Shanghai, 10	
Sodium Arseniate—	
New York, 3 cks.	
Rouen, 20 brls.	
Sodium Biborate—	
Rio Grande, 5 kgs.	
Rotterdam, 5 cks.	
Sodium Bicarbonate—	
Genoa, 15 kgs. 2 cks.	
Mazatlan, 20	
Nagasaki, 200	
Odesa, 560	
San Francisco, 105	
Jose, 100	
Tunis, 50	
Valencia, 100	
Yokohama, 2,200	
Antwerp, 100	30
Bombay, 100	3 bgs.
B. Ayres, 50	
Halifax, 50	
Have, 60	
Melbourne, 50	
Rouen, 55 brls.	
Salonica, 20	
Wellington, 120	
Sodium Bichromate—	
Piraeus, 3 cks.	
Sodium Bisulphite—	
Bombay, 5 brls. 20 kds.	
Sodium Hyposulphite—	
Barcelona, 4 cks.	
Sodium Silicate—	
Alexandria, 27 cks.	
Alicante, 47	
Bombay, 28	4 brls.
Genoa, 32	
Gijon, 6	
Oporto, 5	6
Piraeus, 31	
Salaverry, 20	
Salonica, 10	
Vigo, 20	
Barcelona, 70	
Carril, 4	
Valencia, 25	
Stearine—	
New York, 9 cks.	
Sulphur—	
Bombay, 4 t. 19 c.	£40
Porto Alegre, 1 3 2 q.	8
New Orleans, 1	7
Boston, 145 7	566
New York, 201 3	775
Superphosphates—	
Valencia, 50 t. 11 c. 3 q.	£181
Barcelona, 10 2 2	30
Superphosphate of Lime—	
Valencia, 124 t. 18 c. 2 q.	£361
Tallow—	
Barbadoes, 50 bxs.	
B. Ayres, 1 ck.	
C. C. Castle, 2 cks.	
Half Jack, 2	
Asim, 3 1 cs.	
Santa Catherina, 3 brls.	
Santander, 12	
Turpentine—	
Hamburg, 6 brls.	
San Jose de Guatemala, 30 dms.	
Tartaric Acid—	
Vigo, 2 c.	£11
Bahia, 6	38
Yarnish—	
Macao, 1 cs.	
Alexandria, 9 dms.	
Bombay, 40	
Madras, 20	
Malta, 1 1 bx.	
Seville, 1 6 cks.	

Zinc Carbonate—	
Pernambuco, 1 t. 2 c. 2 q.	£25
Zinc Chloride—	
New York, 2 t. 14 c.	£23
Bombay, 6	108

GLASGOW.

Week ending January 26th.

Ammonium Sulphate—	
Antwerp, 19 t. 18½ c.	£200
Italy, 51 4½	485
Demerara, 135	1,594
Valencia, 327 10½	3,045

Benzol—	
Rotterdam, 19 dms.	£340

Chemicals (otherwise undescribed)	
Demerara, 61 t. 17 c.	£657

Chloride of Lime—	
New York, 9 t. 17 c.	£79

Coal Products—	
Alizarine Colours	
Lisbon, 9 c.	£33

Alizarine Oil	
Lisbon, 50 t.	£41

Pitch	
Amsterdam, 200 t.	£280

Tar	
Gijon, 330	330

Calcutta, 50 t.	£245
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Java, 50 t.	85
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Boston, 50 t.	106
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Colour—	
Java, 2 t. 10 c.	£38

Chili, 1 15½	£32. 10s.
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Copperas—	
Bombay, 4 t. 3½ c. 7 lbs.	£77

Cottonseed Oil—	
Hungary, 4 t. 3½ c. 7 lbs.	£77

Extracts—	
Portland, Me., 4 t. 2	£21. 8.

Lead Acetate—	
Bombay, 4 t. 2	£62

Linseed Oil—	
Cape Colony, 3 t. 17½ c.	£85

Rio de Janeiro, 6 4	130
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Chili, 7	173
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Portland, Me., 4 7½	90
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Trinidad, 3 18	83
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Litharge—	
Bombay, 2 t. 1 c.	£27

Manganese—	
Rotterdam, 19 cks.	£100

New York, 10 t. 8 c.	97
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Manure—	
Java, 3 t.	£26

New York, 26 6½ c.	129
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Ochre—	
New York, 5 t. 8½ c.	£22

Oxalate—	
Boston, 7 t.	£160

Paint—	
Bombay, 8 t. 7½ c.	£204

Chili, 151	
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Painters' Colours—	
Cape Colony, 4 t. 10½ c.	£110

Trinidad, 4 t. 10½ c.	76
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Paraffin Wax—	
Nantes, 2 t. 6½ c.	£73

Italy, 31 9½	569
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Hungary, 235 10½	1,577
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Bilbao, 4 11	112
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Cape Colony, 7 13½	160
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Valencia, 35 17½	803
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Phosphate of Lime—	
Demerara, 20 t.	£80

Phosphoric Acid—	
Trinidad, 4 t. 7½ c.	£83

Potassium Bichromate—	
Nantes, 5 t. 14½ c.	£214

Lisbon, 4 1	166
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Antwerp, 10 7	380
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Italy, 2 3	86
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Rotterdam, 8 8	754
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Boston, 29 3	314
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Valencia, 29 3	1,118
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Potassium Chloride—	
Valencia, 2 t. ½ c.	£20

Potassium Prussiate—	
New York, 9 t. ¾ c.	£820

Salt Cake—	
Baltimore, 200 t. 5 c.	£400

Sodium Arseniate—	
Lisbon, 1 t. 12 c.	£21

Sodium Bichromate—	
Lisbon, 1 t. 17 c.	£61

Italy, 5 8½	177
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Sulphur—	
Trinidad, 6 t. 10½ c.	£50. 18s.

Sulphuric Acid	
Madras, 4 t. 4½ c.	£50

M. Video, 1 12½	14
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Trinidad, 3 11½	36
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Demerara, 6 1½	60
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Superphosphate—	
Valencia, 18 t. 2½ c.	£45

Tallow—	
Antwerp, 11 t. 8 c.	£228

Rotterdam, 15 9½	£514. 15s.
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HULL.

Week ending January 21st.

Alum—	
San Francisco, 242 cks.	

Ammonium Sulphate—	
Bordeaux, 100 bls.	

Ghent, 70 t.	
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Benzol—	
Rotterdam, 11 dms.	

Caustic Soda—	
Libau, 38 dms.	

Chemicals (otherwise undescribed)	
Antwerp, 21 cks.	

Amsterdam, 2 116 pkgs. 16 btl.	
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Bergen, 3	
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Bordeaux, 40 cs.	
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Christiania, 40 12 704 sibs.	
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Dunkirk, 2 2 kgs.	
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Gothenburg, 31 26 245	
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Hamburg, 255 2 15	
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Hango, 1 50	
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Libau, 1 8 20 pgs.	
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Rotterdam, 660	
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Reval, 8	
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Stettin, 3	
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Cottonseed Oil—	
Antwerp, 670 c.	

Amsterdam, 21	
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Bremen, 220	
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Bordeaux, 398	
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Flushing, 252	
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Hamburg, 2,189	
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Hango, 35	
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Marseilles, 1,018	
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Naples, 60	
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Rotterdam, 387	
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Dyestuffs (otherwise undescribed)	
Boulogne, 1 cs.	

Boston, 5 cks.	
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Christiania, 1 130 bgs.	
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Hamburg, 1	
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Libau, 2	
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Rotterdam, 1 kg.	
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Farina—	
Rotterdam, 5 c.	

Linseed Oil—	
Bergen, 18 c.	

Christiania, 28	
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Hamburg, 236	
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Ochre—	
Rotterdam, 2 cks.	

Painters' Colours—	
Antwerp, 2 cs. 4 cks. 1 dm.	

Boston, 45 40 kgs.	
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Bordeaux, 5	
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Christiania, 1 8	
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Dunkirk, 1 16	
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Genoa, 25 29 3	
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Ghent, 35	
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Hamburg, 3 7	
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Naples, 20	
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New York, 119	
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Rotterdam, 16 pkgs. 14 1	
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San Francisco, 38	
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Paraffin Wax	
Stettin, 100 bls.	

Pitch—	
Antwerp, 90 t.	

Dunkirk, 102	
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Potassium Chlorate—	
Reval, 200 kgs.	

Tar—	
Hamburg, 2 cks.	

Turpentine—	
Hango, 10 cks.	

Yarnish—	
Antwerp, 3 cs.	

Amsterdam, 1 10 cks.	
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Christiania, 1	
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Gothenburg, 3 8 dms.	
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Genoa, 1	
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Naples, 1 1	
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PRICES CURRENT.

WEDNESDAY, FEB. 1st,

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	&	11/-
„ Glacial	„	50/-		
Arsenic S.G., 2000°	„	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
„ (Cylinder), 30° Tw.	„	0	3	0
Nitric 80° Tw.	per lb.	0	0	1¾
Nitrous	„	0	0	1¾
Oxalic	nett	0	0	3¾
Phosphoric, 1750°	„	0	1	2½
Picric	„	0	1	1
Sulphuric (fuming 50 %	per ton	15	10	0
„ (monohydrate)	„	5	10	0
„ (Pyrites, 168°)	„	3	5	0
„ „ 150°	„	1	5	0
„ (free from arsenic, 145°)	„	1	6	0
Sulphurous (solution)	„	2	15	0
Tannic (pure)	per lb.	0	1	2
Tartaric	„	0	0	11¾
Arsenic, white powdered	nett per ton	13	0	0
Alum (loose lump)	„	5	5	0
Alumina Sulphate (pure)	„	5	0	0
Aluminium	per lb.	2s. 8d.	to	0 3 2
Ammonia, Anhydrous	„	0	1	1
„ 880=28°	per lb.	0	0	2½
„ =24°	„	0	0	1¾
„ Carbonate	nett	0	0	3¾
„ Muriate	per ton	20	0	0
„ „ (sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
„ Nitrate	per ton	38	10	0
„ Phosphate	per lb.	0	0	10½
„ Sulphate (grey) London	per ton	10	8	0
„ „ (grey) Hull	„	10	8	9
Aniline Oil (pure)	per lb.	0	0	7½
Aniline Salt	„	0	0	6¾
Antimony	per ton	45	10	0
„ (tartar emetic)	per lb.	0	1	0
„ (golden sulphide)	„	0	0	10
Barium Chloride	per ton	7	10	0
„ Carbonate (native)	„	3	10	0
„ Sulphate (native levigated)	„	45/-	to	75/-
Bleaching Powder, 35 %	nett	7	10	0
„ „ Liquor, 7 %	„	3	10	0
Bisulphide of Carbon	„	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	„	17/6	to	35/-
Coal Tar Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	8
Magenta	„	0	3	9
Coal Tar Products				
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	0
Benzol, 90 % nominal	per gallon	0	2	1
„ 50/90	„	0	1	9
Carbolic Acid (crystallised 40°)	per lb.	0	0	8
„ (crude 60°)	per gallon	0	2	6
Creosote (ordinary)	„	0	0	1¾
„ (filtered for Lucigen light)	„	0	0	1¾
Crude Naphtha 30 % @ 120° C.	„	0	0	11
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	„	1	8	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	2
Coke-oven Oils (crude)	„	0	1	1¾
Copper	per ton	45	5	0
„ Sulphate	„	16	5	0
„ Oxide (copper scales)	„	42	0	0
Glycerine (crude)	„	13	0	0
„ (distilled S.G. 1250°)	„	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
„ Sulphide (antimony slag)	„	2	0	0
Lead (sheet) for cash	„	11	0	0
„ Litharge Flake (ex ship)	„	13	10	0
„ Acetate (white „)	„	25	15	0
„ „ (brown „)	„	17	10	0
„ Carbonat. (white lead) pure	„	20	0	0
„ Nitrate	„	20	0	0
Lime, Acetate (brown)	per ton	6		
„ „ (grey)	„	10		
Magnesium (ribbon and wire)	per oz.	0		
„ Chloride (ex ship)	per ton	2		
„ Carbonate	per cwt.	1		
„ Hydrate	per ton	17		
„ Sulphate (Epsom Salts)	per ton	2		
Manganese, Sulphate	„	17		
„ Borate	per cwt.	2		
„ Ore, 70 %	per ton	4		
Methylated Spirit, 61° O.P.	per gallon	0		
Naphtha (Wood), Solvent	„	0		
„ Miscible, 60° O.P.	„	0		
Oils:—				
Cotton-seed	per ton	24		
Linseed	„	20		
Lubricating, Scotch, 890°—895°	„	7		
Petroleum, Russian	per gallon	0		
„ American	„	0		
Potassium (metal)	per oz.	0		
„ Bichromate	nett per lb.	0		
„ Carbonate, 90% (ex ship)	per ton	18		
„ Chlorate	per lb.	0		
„ Cyanide, 98%	„	0		
„ Hydrate (Caustic Potash) 80/85 %	per ton	22		
„ „ (Caustic Potash) 75/80 %	„	21		
„ „ (Caustic Potash) 70/75 %	„	20		
„ Nitrate (refined)	per cwt.	1		
„ Permanganate	per cwt.	3		
„ Prussiate Yellow	per lb.	0		
„ Sulphate, 90 % (ex ship)	per ton	9		
„ Muriate, 80 % (do.)	„	8		
Silver (metal)	per oz.	0		
„ Nitrate	„	0		
Sodium (metal)	per lb.	0		
„ Carb. (refined Soda-ash) 48 %	nett per ton	6		
„ „ (Caustic Soda-ash) 48 %	„	5		
„ „ (Carb. Soda-ash) 48 %	„	5		
„ „ (Carb. Soda-ash) 58 %	„	5		
„ „ (Soda Crystals)	„	3		
„ Acetate (ex-ship)	„	17		
„ Arseniate, 45 %	„	11		
„ Chlorate	per lb.	0		
„ Borate (Borax)	net, per ton	29		
„ Bichromate	per lb.	0		
„ Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	„	11		
„ „ (74 % Caustic Soda)	„	10		
„ „ (70 % Caustic Soda)	„	9		
„ „ (60 % Caustic Soda)	„	8		
„ „ (60 % Caustic Soda, cream) (f.o.b.)	„	8		
„ Bicarbonate	„	6		
„ Hyposulphite	„	7		
„ Manganate, 30%	„	16		
„ Nitrate (95 % ex-ship Liverpool)	per cwt.	0		
„ Nitrite, 98 %	per ton	30		
„ Phosphate	„	15		
„ Prussiate	per lb.	0		
„ Silicate (glass)	per ton	5		
„ „ (liquid, 100° Tw.)	„	4		
„ Stannate, 40 %	per cwt.	3		
„ Sulphate (Salt-cake)	per ton	1		
„ „ (Glauber's Salts)	„	1		
„ Sulphide	„	7		
„ Sulphite	„	6		
Strontium Hydrate, 100%	„	8		
Sulphocyanide Ammonium, 95 %	per lb.	0		
„ Barium, 95 %	„	0		
„ Potassium	„	0		
Sulphur (Flowers)	per ton	8		
„ (Roll Brimstone)	„	6		
„ Brimstone: Best Quality (nominal)	„	4		
Superphosphate of Lime (26 %)	„	2		
Tallow	„	26		
Tin (English Ingots)	„	96		
„ Crystals	per lb.	0		
Zinc (Spelter)	per ton	17		
„ Chloride (solution, 96° Tw.)	„	6		

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THE INSTITUTE OF CHEMISTRY.

THE reports of the proceedings of the Institute of Chemistry which have appeared in these columns during the last eighteen months indicated very clearly that the stagnant state of the executive had developed a process of fermentation in certain quarters. The ferment has grown and spread rapidly, until it seems to have leavened the whole of what was apparently a mass of inertia. The working of the ferment has been so manifest that we have for some months entertained the hope that changes were brewing. This hope was strengthened by the evidences of new life and activity shown by the Council over the examination for the Associateship held last July, and it has at length proven itself a justifiable one.

The spirit of reform seems to have seized the Council with an intensity and vigour which is perhaps magnified by the background of the past; but there is not the slightest doubt that, making allowance for the fact that the present action of the Council stands out in exceptionally bold relief, the changes in the regulations relating to the qualifications for the Associateship recently announced by the Council are radical ones. They will be a revelation to some, and possibly a somewhat appalling one.

Three examinations are now necessary to qualify for the Associateship—a preliminary, intermediate, and final examination. The fees, too, are changed, an entrance fee of two guineas being necessary for the intermediate, and three guineas for the final examination. The intermediate examination is pretty nearly identical with the old examination, while the final is a test of efficiency in at least one branch of analytical chemistry, it being permissible for a candidate to present a thesis upon any subject to which he has devoted special attention.

The qualifications for the intermediate examination have been subjected to alteration, the idea being to make a three years' course of systematic training an essential, and in the case of students to ensure all the time being devoted to study either at a prescribed college, or, at least, partly at a college and partly in the laboratory of a Fellow of the Institute.

Putting aside the ordinary regulations to be complied with, students who wish to qualify in the laboratory of a Fellow have to satisfy the Council that they have during two years been entered as students of the Institute, and for the whole of that time been attending regularly the following courses of instruction at a college or school approved by the Council:—

The ordinary systematic courses of lectures given by the Professor in the selected college on "Theoretical Chemistry" (including inorganic and organic) during two years. For "Practical Chemistry," laboratory work, during two academic years, three days in each week, and at least five hours each day. For "Physics," attendance on at least 50 lectures on physics and work in the physical laboratory of at least 100 hours during the two years.

And, further, that they have been engaged for two other years in the laboratory of a Fellow of the Institute.

In addition to this, it will be necessary (apart from passing the examinations held in connection with the prescribed courses of instruction) for students to show that they have been through a course of from forty to fifty lectures in one of the following five subjects, which the students have the option of selecting, namely:—Mathematics, elementary mechanics and general chemical engineering, metallurgy, geology and mineralogy, or elementary physiology; and that the examination on the selected subject has been passed in a proficient manner.

To those acquainted with the qualifications pertaining about five years ago, the foregoing presents much food for reflection. The old order has indeed changed, and the change may possibly tell heavily in some cases. It was high time, however, that the new order was instituted, and the severity of the alterations would only have been increased by procrastination, for if matters had not been allowed to sink to such a low ebb in the past, we think we may safely say that there would never have been any occasion for such an abrupt turn to the right-about, but the strictness of the regulations would have been gradually increased as time advanced. The position of the Institute was an extraordinary one, however, and it was only by extraordinary measures that matters could be righted. The tide has evidently turned at last, and though it has been a long time doing so, it is better late than never, despite the fact that the probabilities are many will be inclined to think how far better it would have been never to have been late.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE monthly meeting of this committee was held on Monday last, February 6th, at the offices in Mosley Street, Manchester. The chair was taken by Mr. Alderman Thompson. Before proceeding with the business of the meeting the chairman informed the committee that since the last meeting the Queen had been gracious enough to confer the honour of Knighthood upon their permanent chairman. No one more than Sir J. T. Hibbert deserved this honour, and the chairman moved that the congratulations of the committee be sent to Sir John Hibbert. Mr. Alderman Walmsley seconding the resolution said, after an acquaintance of seventeen years he felt much pleasure in testifying to the geniality of Sir J. Hibbert's nature and to the breadth of his perception. The motion was carried unanimously.

The position of the Whitefield Local Board was then discussed and Mr. T. W. Killick moved that, pending the Local Government Board inquiry as to the proposal to transfer a portion of the Whitefield Local Board district to the Radcliffe Local Board district, the proceedings against the Whitefield Local Board be adjourned for two months.—Alderman Walmsley, in seconding the motion, said the Salford Corporation had the right to proceed first, but he did not think they would object to this committee dealing with the matter.—The resolution was carried, and it was agreed that the matter should be discussed at a joint meeting with the Salford Committee.

THE CONFERENCE AT SALFORD.

The Clerk reported that at a conference between members of this committee and the Rivers Conservancy Committee of the Salford Council a proposal was made by the former that a joint committee, consisting of three members of each authority, be appointed to deal with the question of pollution from manufactories, and that the Salford Committee withhold their hands in reference to the proposed prosecution of the Littleborough Dyeing Company. The Salford Committee insisted upon reserving the right to proceed alone, and the conference broke up without result.

Mr. Killick said that, although no agreement was arrived at, he thought the meeting had had a good effect. He felt confident that they would be able to arrange the whole of the cases in a satisfactory manner.

Alderman Walmsley said the Salford committee were promised concurrent powers with this committee, but in practice objection was taken in this committee to Salford doing anything. It must be remembered that Salford had a stake in the matter which did not allow the author-

ities there to trifle with the question. He suggested the formation of a sub-committee consisting of three members from Salford and from the Mersey and Irwell Committee to deal with such cases. Killick thought such a committee was unnecessary, and after discussion the matter was left over.

The consulting sub-committee reported that the Audenshaw Board stated that they would now have been ready to start the necessary sewerage works, but that the Local Government Board rescinded their scheme until they had acquired more land. Further stated with reference to the pollution of the Gore Brook they were not wholly responsible, as part of the pollution came from the Droylsden and Ashton Districts of Manchester, and also from surrounding localities. The sub-committee therefore recommended that an order giving this authority a month's extension of time be granted in order that the additional land might be acquired. The Manchester Corporation communicated with upon the question of pollution of the Gore Brook. In regard to the Wilmslow Local Board the sub-committee recommended an order granting this authority three months' extension of time in order that they might purchase necessary land for their sewerage works. The Chadderton Local Board had commenced the necessary sewerage works, and the committee recommended that an order be given granting them an extension of three months. It was also recommended that a two months' extension be granted to the Gorton Local Board, three months to the Haughton Board, two months to the Failsworth Local Board, three months to the Marple Local Board. In regard to the Manchester Corporation and Whitworth Local Board, the sub-committee was not satisfied with the action taken, and recommended that on expiration of the three months' notice given, unless good cause be shown to the contrary, proceedings be forthwith taken against the Corporation. The sub-committee were not satisfied with the action of the Corporation in the matter of dealing with their sewerage, and recommended the immediate commencement of proceedings against the Corporation.

The various recommendations of the sub-committee were agreed to. In the case of Bacup it was decided that notice be given asking attendance of representatives at the next meeting of the Committee.

A deputation from the Denton Local Board assured the Committee that within the three months' extension which had been granted would be fully prepared with their scheme.

Mr. Groves (Salford) asked the Chairman if it would not be better for the Committee to represent to the Local Government Board the regulations as to the amount of land to be purchased for filtration rather too exacting, and formed a serious difficulty for local authorities who were endeavouring to complete their schemes. Owing to the advances which had been made in the chemical treatment of sewage and facilities for filtration, he thought the regulations of the Local Government Board were too stringent; while moreover they formed a plea for delay by local authorities who had difficulty in obtaining the necessary land. The Chairman thanked Mr. Groves for his suggestion, which he thought was a valuable one, and at the suggestion of Mr. Killick, Mr. Groves undertook to draft a resolution to be placed before the Committee at the next meeting.

THE REPORT OF THE CHIEF INSPECTOR.

Mr. R. A. Tatton, chief inspector for the Committee, submitted the following report:—

I beg to report that the appeal by the Corporation of Bury against the decision of the magistrates in the case of the Joint Committee of Bury, was heard at the Assize Courts on the 11th ult. The appeal was dismissed with costs. The extension of time granted to the authorities having expired in the cases of Chadderton, Gorton, Denton, Haughton, Failsworth, Marple, and Wilmslow, it will be necessary for the Committee to consider whether a further extension shall be granted, and have to report on the several cases as follows:—

Chadderton Local Board.—One of the contracts for the construction of a portion of the main intercepting sewer has been let, and has been commenced. It is intended to proceed with other works without delay.

Gorton Local Board.—An application for the sanction of the Local Government Board to borrow £30,000. for sewage purposes was made on October 29, 1892, but as the scheme did not provide for treatment of the effluent on an adequate area of suitable land, it was referred back to the Local Board for revision. The clerk to the Board forwarded for your information a copy of the correspondence with the Local Government Board, the outcome of which is that, on the sanction of the Local Government Board, the Local Board has as an inspector should be sent down to hold a preliminary inquiry into the question, and a report was sent on December 23.

Denton and Haughton Local Board.—At your last meeting a month was granted to this authority to complete the purchase of land for sewage works. The purchase has, I understand, not been completed.

Fairbairn Local Board.—The plans and estimates for the proposed sewage works have been sent to the Local Government Board, and application made for borrowing powers.

Marple Local Board.—The plans and estimates for the proposed sewage works are ready for sending to the Local Government Board, with the application for borrowing powers.

Bacup Corporation.—The position of Bacup in regard to sewage is a matter to which it is desirable to draw your attention. In May last, I reported to you that negotiations were going on with the Corporations of Rawtenstall and Haslingden with a view to a joint scheme at Ewood Bridge. Those negotiations have led to no definite result, but have rather been a cause of delay in the acceptance by the Local Government Board of the Rawtenstall and Haslingden scheme. I understand that a new committee has been appointed with a view to further negotiations, but in the meantime all progress in the direction of sewage treatment at these towns, with a combined population of 70,000 persons, is at a standstill. As an alternative to joining in the Ewood Bridge scheme, Bacup is now in possession of two plots of land, comprising together nine acres, on which the sewage of the district could probably be treated. On one of these plots filters which were constructed 26 years ago are in operation, but although they intercept a considerable proportion of the solid matter, the treatment as effected by them cannot be said to be in any way efficient.

Analysis of Effluents.—There is another point to which I would draw the attention of the Joint Committee; that is, the desirability of making arrangements for having a chemical analysis made of any effluents, the character of which may be open to dispute. Questions will probably arise within the next few months as to whether certain manufacturers' waste waters are admissible, which can only be decided on analysis, and in the case of sewage a judgment based merely on the clearness of the effluent is anything but reliable. The Salford Rivers Committee has been good enough to furnish me with analyses of samples which they have regularly taken of the waters of the Irwell, Irk, and Medlock; these analyses form a most valuable record of the condition of the rivers; they do not go into elaborate detail, but give such particulars as would probably be found sufficient for the present. I would suggest, therefore, that the question be considered by the Committee with a view to some decision being come to at an early meeting.

Dr. Hewitt drew attention to the last paragraph of the report. Some forms of pollution, he said, were more serious than others, and they wanted information which would enable them to deal rightly and justly with this question. While the Committee were determined that nothing should be sent into the rivers which could possibly be kept out, yet their policy was not to interfere with trade more than was necessary. They had had a report from Sir Henry Roscoe, but it was lacking in detail, and there was nothing in it for the guidance of the Committee. They wanted a detailed examination by a man who had time to make it of the effluents of the different trades. With that examination they would be able to say that certain things must be done and might reasonably be expected to be done by each trade, and he moved that a chemist be appointed to make a report on the lines he had suggested. After a little discussion Mr. Killick suggested the formation of a Sub-Committee. This suggestion was adopted and subsequently Messrs. Hewitt, Neville, Walmsley, Brierley, and Killick were appointed a sub-committee to report to the Committee on the question at the next meeting.

THE SALFORD BILL.—THE COMMITTEE OPPOSE.

Letters were read by the Clerk (Mr. Hulton), from the various secretaries of the Bleachers' Association, the Calico Printers' Association, and the Papermakers' Association, asking the Joint Committee to oppose the Bill which Salford sought to obtain, giving them fuller powers.

Mr. Killick said a resolution was passed at the last meeting of the Joint Committee stating that they did not object to the 29th clause as drawn, but that they would oppose any alteration being made in it. He moved that that resolution be rescinded.

This was seconded.

Alderman Walmsley said the Salford Corporation only wanted the powers for use in their own borough. If they had not been promised concurrent powers with those of the committee they would have opposed the committee's Bill last year.

Mr. Groves said he thought the manufacturers had sent their letters under a complete misconception of the Salford Bill.

Mr. V. K. Armitage supported the action of the Salford Corporation. Mr. Neville said the manufacturers accepted the inevitable rod because it would be laid upon them by an authority in which they had confidence. He believed the manufacturers of Salford had not the same confidence in the Corporation as they had in the committee. (Laughter.)

Mr. Groves and Alderman Walmsley protested against this statement.

Mr. Neville said that if Salford got these powers every other authority in the watershed would want them. It was not a personal matter with Salford; it was a matter of what next.

Dr. Hewitt said the object in forming a single committee was that there should be one authority and one judgment as to the nature of the steps to be taken by manufacturers in the watershed. Now, however, it was proposed to put the administration into the hands of a number of authorities, because if Salford got it others would want the same. He thought that if the Salford Corporation reconsidered the matter, they would see that it was better to have uniformity.

The Chairman said the Committee had the confidence of manufacturers, who relied on them not to paralyse trade. The Salford Corporation would in no way suffer in prestige by withdrawing the clause the manufacturers objected to.

The resolution of January 9 was rescinded by nine votes to three.

Mr. Neville moved that a petition be presented against the Salford Bill.

Mr. George Clay seconded the motion.

Mr. Alderman Walmsley proposed as an amendment that in the event of the powers sought being definitely and clearly confined to Salford the Committee should not oppose.

Mr. Groves seconded the amendment.

Mr. Brierley, as a manufacturer, urged that the Committee should remain as the central authority.

The amendment was defeated by nine votes to four.

Mr. Alderman Walmsley moved that the consideration of the matter be postponed for a week.

Mr. Alderman Noton, Mayor of Oldham, seconded the amendment.

Mr. Hewitt said that meant loss of time, and they could not petition against the bill unless they did it then.

Mr. Groves: They were only throwing a sop to the manufacturers. (No, No.)

The amendment was lost by eight votes to five, and it was then decided to oppose the Bill by a petition.

THE PARLIAMENTARY EXPENSES OVER THE COMMITTEE'S BILL.

On the report of the Finance Committee, the Chairman said the total amount named as Parliamentary expenses was £2,669. He was assured by Mr. Hulton that £1,950 of this amount was entirely due to opposition by the Bury Corporation. He thought it was right that their constituents should know these facts.

BURY ENLIGHTENS THE COMMITTEE.

Mr. Bentley (Bury) said the amount named was undoubtedly large, and he dared say the expenses of the Bury Corporation would be somewhat similar. He maintained, however, that the opposition to the Bill was perfectly justifiable. It was an unpleasant thing to say, but he strongly suspected that a considerable portion of the committee's expenditure was illegitimate. He was informed that their own counsel told them they had not a ghost of a chance of succeeding, and he believed the success of their Bill was obtained by the grossest misrepresentation by lobby influence, and by the influence of the Ship Canal directors, rather than anything else. (Laughter.) The Bury Corporation were induced to join in the application on the promise that when the time came for the authority to be constituted it would address itself to the taxation of land value, before any prosecution was instituted. ("No.") He would like to say that to Sir J. T. Hilbert's face. He said the promoters of the Bill or their counsel or members of Parliament on their behalf deceived the House. They promised Mr. Ritchie that the same protection should be given to sanitary authorities as they gave to manufacturers. As a matter of fact it had been influence before the magistrates and Quarter Sessions which had obtained them a verdict. The Bury Corporation were not satisfied, and if they could throw away more of the committee's money they would do so.

The Chairman said Mr. Bentley's last words were, perhaps, the most definite of all. The Bury Corporation intended throwing more money away, and it was evident that their spirit was not a friendly one. With regard to the other parts of the speech, he thought it best to take no notice of them—(hear, hear)—except to give a simple and absolute denial to every one of the statements. If Bury thought that a Parliamentary Committee could be hoodwinked in the way Mr. Bentley believed they had been, he was surprised. It was usually thought that Bury was rather gullible in some respects, and he thought they had been in this. It was an utter misconception of everything that had taken place if Mr. Bentley believed what he had said.

At the close of the meeting, Mr. Armitage asked if anything further had been done as to representatives of the Derbyshire County Council joining the Committee. Mr. Hulton replied that steps were being taken in the matter and they expected representatives would be sent shortly, but the Council were very hard to move.

STOPPAGE OF A STEEL WORKS.—We learn from Middlesbrough that the Eston Steel Works of Messrs. Bolckow, Vaughan, and Company are again stopped owing to lack of orders, and 1,500 men are affected.

THE EMPLOYERS' LIABILITY BILL.

THE following is the text of the bill on the liability of employers, introduced by Mr. Asquith, M.P., the Home Secretary. The bill being a measure which is likely to affect Chemical Manufacturers and others, we give the same in full.—

1. (1) Where after the commencement of this Act, personal injury is caused to a workman by reason of the negligence of any person in the service of the workman's employer, the workman, or, in case of death, his representatives, shall have the same right to compensation and remedies against the employer as if the workman had not been a workman of nor in the service of the employer, nor engaged in his work. (2) Provided that a workman or his representatives shall not be entitled under this Act to any right of compensation or remedy against the workman's employer, in any case where the workman knew of the negligence which caused his injury, and failed without reasonable excuse to give or cause to be given within a reasonable time information thereon to his employer, or to some person superior to himself in the service of his employer.

2. A contract whereby a workman relinquishes any right under this Act shall not, if made before the accrual of the right, constitute a defence to any action brought for the recovery of compensation under this Act.

3. Where an employer has contributed to a fund providing any benefit for a workman or his representatives in case of injury or death, then, in the event of the workman or his representatives electing to sue the employer for compensation instead of claiming against the fund, the employer shall be entitled, in the place of the workman or his representatives, to any money payable out of the fund.

4. (1) There shall be deducted from any compensation awarded to a workman or his representatives against his employer in respect of an injury sustained by him in the course of his employment any fine, or part of a fine, paid in pursuance of any Act of Parliament to the workman or his representatives in respect of the same cause of action. (2) Where an action has been brought by a workman or his representatives for compensation for an injury sustained by him in the course of his employment, and payment has not previously been made of any fine, or part of a fine, under any Act of Parliament, in respect of the same cause of action, the workman or his representatives shall not be entitled thereafter to receive any fine, or part of a fine, under any Act of Parliament in respect of the same cause of action.

5. Any action by a workman or his representatives against the workman's employer for injury caused to the workman by reason of the negligence of the employer, or of any person in the service of the employer, whether brought under this Act or not, may be brought in a County Court, but if in any action so brought the amount claimed exceeds one hundred pounds the action shall, on the application of the defendant, be removed into the High Court, in like manner and on the same conditions as any other action commenced in a County Court may by law be so removed.

6. This Act shall not apply to a domestic or menial servant, but, subject as aforesaid, shall apply to the following classes of persons, namely:—(a) Every person who, being a labourer, servant in husbandry, journeyman, artificer, handicraftsman, or miner, or otherwise engaged in manual labour, has entered into or works under a contract of service with an employer, whether the contract is express or implied, is verbal, or in writing, and is a contract of service or a contract personally to execute any work; (b) every railway servant; (c) every person employed in or about a public conveyance by land, or in or about a vessel engaged in inland navigation; and (d) every seaman employed on board a British ship. Every person belonging to any of the classes to which this Act is declared by this section to apply is in this Act included in the expression "workman."

7. In this Act (1) the expression "employer" includes a body of persons corporate or unincorporate, and the representatives of a deceased employer; (2) the expression "seaman" includes every person employed on a ship, and the expression "ship" includes every description of sea-going vessel not propelled by oars; (3) the expression "representatives" means legal personal representatives, and expressions referring to the representatives of a deceased workman shall be construed as including the persons entitled to compensation in case of his death.

8. In the application of this Act to Scotland the following modifications shall be made:—(a) The expression "county court" shall mean the sheriff court; (b) any action under this Act may be removed to the Court of Session at the instance of either party in the manner provided by and subject to the conditions prescribed by section 9 of the Sheriff Courts (Scotland) Act, 1877; (c) the sheriff may conjoin actions arising out of the same occurrence or cause of action, though at the instance of different parties and in respect of different injuries.

9. Nothing in this Act shall prejudicially affect any right or remedy to which a workman is entitled independently of this Act.

10. Nothing in this Act shall affect any contract existing at the commencement of this Act between a workman and an employer, or the continuance of the contract, but where any such contract incidental to a contract of service it shall not, for the purposes of this section, be deemed to continue after the time at which the contract of service would determine if notice of the determination thereof were given at the commencement of this Act.

11. The Employers' Liability Act, 1880, is hereby repealed as from the commencement of this Act, but any proceedings pending at the date under the Act hereby repealed may be continued as if they had been commenced under this Act.

12. This Act shall come into operation on the first day of January one thousand eight hundred and ninety-four.

13. This Act may be cited as the Employers' Liability Act, 1894.

INSPECTION OF THE MANCHESTER GAS WORKS.

AT the last meeting of the Manchester City Council, Council Gibson moved the adoption of the proceedings of the Gas Committee. He said the members of the Council would regret the absence from the meeting of Councillor Joseph Brooks, chairman of the Committee, through an attack of gout; the poor man's gout, Mr. Brooks called it. (Laughter.) The committee made the following recommendation: "That having regard to the great extensions which have been made, or which are in progress in the gas-making plant at the respective gas works, and to the varied and elaborate stoking machinery in operation, which can be seen to the best advantage during full making, and inasmuch as there are many members of the Council who have not had the opportunity of inspecting the works, the committee were of opinion that it was desirable for the members of the Council to visit the City Gas Works for the purpose of examining this valuable property and plant owned by the ratepayers, and of viewing the machinery in operation." A resolution was passed that the members of the Council be invited to visit the various gas works.

Alderman Griffin seconded the motion.

Councillor Trevor (Newton Heath) wished to ask a question in reference to the quality of the gas. There was a legend in Newton Heath that when the Gas Committee were short of gas they forced through the pipes atmospheric air which was not illuminating, but a handy source of revenue. (Laughter.) Complaints of the quality of the gas were made last November, and one firm who made their gas took a rough test, which showed seventeen candle power as compared with thirteen candle power from gas supplied by the Corporation. If that were true it did not reflect credit on the Corporation. In its own mill the quality of the gas had been unsatisfactory.

Councillor Gibson replied that the Gas Committee were making sufficient supply of gas of excellent quality. All the specific complaints made to them had been investigated, and without exception it was found that the cause was entirely due to defective fittings.

The proceedings of the committee were approved.

Parliamentary Jottings.

MINERAL ROYALTIES.

IN the House of Commons last week in answer to Mr. Woods, Mr. Asquith said he had communicated with the Secretary of the Royal Commissioners on Mineral Royalties as to the completion of their investigations and when their final report would be ready, and he would communicate the result to Mr. Woods.

PATENT SPECIFICATIONS OF THE UNITED STATES.

Mr. Snape asked the President of the Board of Trade whether in view of the fact that only one set of patent specifications of the United States of America was presented to this country, whilst twelve sets of British specifications were presented by the British Government—to set to the United States Patent Office and the other eleven to the United States public libraries,—he would take steps to procure a corresponding number of United States specifications for the public libraries of the principal towns of the United Kingdom.

Mr. Mundella: Only one set of the specifications of the United States is presented to this country. Communications have from time to time been addressed to the United States Patent Office with a view of obtaining additional sets for the chief public libraries of the United Kingdom, but it would appear that the United States law does not allow the United States Patent Office to present free copies of publications to any public libraries, either in the United States or elsewhere.

They could have obtained land for intercepting and there would be no difficulty whatever about it. In 1891 an Act was passed, called the Local Government Board Provisional Orders Confirmation, No. 10 Act, which was an Act to confirm certain provisional orders of the Local Government Board for constituting joint committees to enforce the provisions of the Rivers Pollution Act, 1876, in relation to parts of the Rivers Irwell, Mersey, and Ribble. It was very important here to call their attention to what constituted that joint committee. If they referred to the Provisional Order, articles 2 and 3, they would find what it was. Here they found a local Act of Parliament passed to constitute a joint committee to deal with the sewage. That was to say that the Rivers Pollution Prevention Act, 1876, prevented the sewage being carried or allowed to fall into any river, in regard to the rivers Irwell and Mersey, passing through the borough of Bury, and the representatives of the constituent authorities, including, among others, one member from the county borough of Bury. The corporation, therefore, were a constituent part of the committee, which was especially and specifically to deal with the rivers Irwell and Mersey, even as they passed through the borough of Bury, among other places, and to enforce the provisions of the Act in those streams as they ran through Bury and other places, and section 3 was to prevent sewage matter falling into the river.

His Honour: Your contention is any river or any stream?

Mr. Sutton: No, no. I say that this Local Government Board's Provisional Orders Confirmation Act—

His Honour said Mr. Sutton's contention was that they had no right to throw sewage into any stream.

Mr. Sutton: Yes. And then it went on and said it should be specifically enforced in those parts of the rivers Irwell and Mersey which ran through the borough of Bury. When the committee was constituted Mr. Maxwell was appointed to represent Bury.

His Honour: What rivers is this sewage thrown into?

Mr. Sutton: The Roach and the Irwell. On the 30th November the committee had to consider their powers. He need not say that if it was becoming urgent in 1876, it would be still more so in 1891, that the rivers Irwell and Roach, and other rivers in the watershed should be purified.

Mr. Gully did not know what they had to do with the views of the committee. It was a conviction for pouring sewage into the rivers Roach and Irwell. If they could justify that act it was not wrong. If they could not justify the act it was wrong. That was the issue before them. They had nothing to do with what any member of the committee thought or said.

His Honour: It will not injure me in any way.

Mr. Gully: It will not injure you. I am only afraid of its injuring me. (Laughter.) His friend had gone into many matters which he (Mr. Gully) did not think he would be entitled to give evidence upon, and he (Mr. Gully) had not interrupted him. But he would ask his friend to confine himself to the real question as to whether the corporation were justified in pouring the sewage into the river or not. The only ground of appeal set up was whether they were justified under the Act of 1846.

His Honour: I know. It is whether it is repealed by implication.

Mr. Sutton: Directly repealed.

His Honour: There is no difference, is there? (Laughter.)

Mr. Sutton: No. One of the points of the Thorpe v. Adams case was to see whether a person who had offended had notice of the general Act or appeared in Parliament when the general Act was under discussion.

Mr. Gully: I should like to see that.

Mr. Sutton said what he was dealing with was to show that the corporation had notice—in fact they appeared before Parliament.

Mr. Gully asked for his friend's authority for going into the question and under what circumstances and who appeared on behalf of the county borough of Bury before Parliament in order to ascertain what was the meaning of the Act of Parliament.

His Honour: At present advised I should not think you can. What we have got to do is to look at all the Acts bearing upon the matter, and to say whether or not the fair deduction is whether the Act under which the corporation claim to act has been repealed or not.

Mr. Gully: Gathering it from the Acts themselves.

His Honour: There is no expressed repeal?

Mr. Sutton: No expressed repeal.

His Honour: But you say there has been a repeal of the Act of Parliament by implication by subsequent Acts?

Mr. Sutton: Yes. There was a different principle entirely applying to that they gave to local Acts. When he was speaking of repeal by implication, he was dealing with the general Act, and he said that those general Acts would be sufficient by implication to repeal that.

His Honour: That is what I understand.

Mr. Sutton proceeded to urge that the Act of 1892 was a special Act, and thus the maxim that later laws abrogated prior ones.

Mr. Gully: It depends upon what they say, a great deal.

Mr. Sutton, continuing, said that in the Acts he had referred to it would be impossible for the legislature to have in its mind all previous legislation, and one reason of the rule was that it could not be presumed that the legislature would be aware that it would affect private interests. All the persons interested knew that their interests would be interfered with. The corporation of Bury did know that their interests were being interfered with, and it was perfectly admissible to show that they were aware of it and also attended before Parliament.

Mr. Gully: I shall object to evidence of that sort.

Mr. Sutton said he was not putting this in without being prepared to prove it. He was perfectly aware that his friend would object to it, and he therefore came prepared to show that what he said was correct.

Mr. Gully remarked that the law adopted the general principle that general Acts were not to be held to have repealed special Acts, but that did not say they were to go into the evidence in each case to see what happened before the committee. The fact that that was one of the reasons which induced the law to adopt that rule did not enable them in each particular case to go into the evidence.

Mr. Sutton said he was going to give evidence that Bury knew and were represented, and he was going to stop there.

His Honour: The Act appointing the Joint Committee shows that Bury was represented there.

Mr. Sutton: And I am going to show that Bury had notice of this Act of Parliament.

Mr. Gully said he would then be entitled to go into evidence to show what the nature of that knowledge was, and that this question of the 1846 Act was not mentioned before Parliament at all. He had not the slightest objection to the whole of it being gone into, but they were not there to go into an inquiry of how previous Acts were passed, but simply to construe the Acts as they stood.

The report of this case will be continued next week.

Correspondence.

** * We do not hold ourselves responsible for the opinions expressed by our correspondents.*

ANSWERS TO CORRESPONDENTS.

- A. H. AND Co.—Thanks for your letter. We shall take the matter in hand shortly.
 W. B. AND Co. (Rotterdam).—Your communication safely to hand. We are always glad to receive such information.
 A. Co., Ltd.—We were surprised to hear your statement, but thank you for the intimation.
 J. H. S.—See this issue.
 M. & Co., Ltd.—We have complied with your request with pleasure.
 J. M. (Anvers).—They have been forwarded to you, and we trust some good will result.
 CHEMIST.—See the back numbers of the Journal. You will find a table which will answer your purpose exactly.
 R. H. C.—It is in a very disturbed state just now, which makes it difficult to quote.
 W. B.—We should be pleased to have a sample.

MELDRUM EXHAUSTERS AND BLOWERS.

(To the Editor of the Chemical Trade Journal.)

DEAR SIR,—In your issue of February 4th, you have an article headed "Innocuous White Lead" in which repeated reference is made to "Korting" blower, but as the blowers in use at the White Lead Co's. works were supplied by us (and we hear from our Glasgow agent that no others are in use) we think it only just to ourselves to have this error corrected. The apparatus should be specified as "Meldrum" exhausters and "Meldrum" blowers.

Apologising for troubling you with these corrections

Yours, etc.,

MELDRUM BROS.

[The error is not ours. We took our cue from the manager's description of the plant.—ED. C.T.J.]

NOTICES.

LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

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FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of the alkali and bleaching materials shipped to the under-mentioned countries during the years ending 31st December, 1891 and 1892:—

ALKALI.				
Port.	1891.	1892.	1891.	1892.
	Cwts.	Cwts.	£	£
Russia	325,900	265,608	160,922	122,084
Sweden and Norway	106,600	87,666	35,133	29,263
Germany	87,100	98,449	34,311	42,908
Holland	59,400	55,621	19,857	18,763
France	36,200	42,203	16,570	18,699
Spain and Canaries	309,400	262,798	144,489	123,387
Italy	171,200	181,283	78,668	79,974
United States	3,714,000	3,713,569	1,297,320	1,247,367
Australasia	210,700	151,300	78,689	54,507
British North America ..	220,500	233,241	72,022	74,703
Other countries	986,400	793,917	397,300	307,136
Total	6,227,400	5,885,655	2,335,281	2,118,791

BLEACHING POWDER, ETC.				
Port.	1891.	1892.	1891.	1892.
	Cwts.	Cwts.	£	£
United States	977,800	924,474	337,360	381,754
Other countries	535,900	565,505	185,055	217,175
Total	1,513,700	1,489,979	522,415	598,929

Trade Notes.

THE LIVERPOOL OVERHEAD RAILWAY.—The Marquis of Salisbury arrived at Liverpool last Friday week and opened the Overhead Railway in that city on Saturday last.

JEYES' SANITARY COMPOUNDS CO., LD.—The annual meeting of shareholders of the Jeyes' Sanitary Compounds Company (Limited) was held at the company's offices on Monday last week. After writing off a considerable amount for depreciation and goodwill and placing £3,425 to reserves, a dividend was declared at the rate of 10 per cent. per annum, in addition to a bonus of 5 per cent, the whole tax free, leaving £1,061 to carry forward.

DESTRUCTION OF A LIBRARY AT NEWCASTLE.—On Wednesday morning last a serious fire broke out at the buildings of the Literary and Philosophical Institute, Newcastle-on-Tyne. Two thirds of the books in the library were destroyed or damaged, the loss being estimated at from £20,000 to £30,000. On Tuesday night the centenary of the opening had been celebrated. The origin of the fire is at present unknown.

COMBINING FORCES.—We learn that the well-known firms of William Baird & Company, of the Gartsherrie Iron-works and the Eglinton Iron Company, the partners in both firms being the same, have been combined and incorporated under the designation of William Baird & Company, (Limited). The capital is £1,300,000. (£1,100,000. paid up), and is retained by the partners, none of it being put on the market.

THE JOVIAL PROFESSOR.—Professor Blackie succeeded in firing off one of his best jokes at the Burns' celebration in Edinburgh recently. When the programme was half finished, a short interval was allowed to the vocalists. Then the Professor suddenly rose, walked to the edge of the platform, and caressing his flowing locks, said:—"I will take advantage of this pause—" The audience, supposing he was going to favour them with a song, broke into loud and prolonged cheering, the enthusiasm lasting several minutes. Silence having at last been obtained, the Professor completed the sentence by adding—"to stretch my legs."

THE USES OF INJECTORS.—At a recent meeting of the Derby Society of Engineers in the place of a set paper a discussion was held on "The Steam Injector." Mr. F. J. R. Carulla opened the discussion. He referred, in the course of his remarks, to the use of injectors for raising liquids as well as supplying feed water. He said he had, after some trouble, succeeded in using an injector for supplying the milk of lime to a Davis's patent Sulphate of Ammonia still, the same injector having now been at work some years without giving any appreciable trouble.

THE LOCKWOOD SEWAGE PROCESS.—This process has been used for an experimental trial on the sewage of Derby. About one third of the total sewage of the town, equal to 750,000 gallons, is being treated. The effluent is neutralized with sulphuric acid as it flows from the works at Litchurch to the river Derwent. The quantity of sewage treated requires chemicals to the value of 14s. 7d. London prices, the following being used:—3½ cwt. of iron sulphate, 2 cwt. of vitriol and from 4 to 5 cwt. of lime. The sludge is burnt and no attempt made to turn the same to account for manurial purposes.

MESSRS. MEISENBACH & CO., LTD.—We have received from this well-known firm of process engravers an almanac, which is a specimen of their monochrome reproductions, by a special ortho-chromatic process, and accurately represents the virtue of the original, as regards light and shade. The border consists of over 600 portraits of members of the present Parliament. The detail of these portraits is excellent, and, despite their minuteness, anyone acquainted with the originals can instantly recognise the same. The whole calendar is a striking instance of the advances which have been made during recent years in this class of work.

SEWAGE WORKS FOR ECCLES.—Major-General H. Darley Crozier, R.E., opened an inquiry at the Town Hall, Eccles, last week, into the application of the Borough Council to borrow about £14,000 for the erection of sewage disposal works and the construction of a sewage farm at Saltey, Barton. In the application was an estimate for the provision of a refuse destructor, but this was not pressed. The population of the borough is 30,000, which is increasing at the rate of 1,000 a year. The late Local Board purchased 71 acres for these works. Mr. Hinnell, C.E., explained the nature of the proposed sewage works. It is proposed to precipitate and irrigate the sewage. There was no opposition to the proposed works.

LIQUEFIED AIR.—Professor Dewar described at the London Institution recently the experiments by which he has reduced atmospheric air to a liquid. The Professor has devised apparatus by which he can not only produce but retain long enough for observation, liquid oxygen and nitrogen, and these were exhibited by a series of experiments—optical, magnetic, thermal and electrical—which were simply fascinating in their novelty and beauty. Both liquids are of faint blue colour, the oxygen being the darker. They have been produced by employment of intense cold, and pressure combined. Without pressure air can be liquified at a temperature of minus 215 degrees C., equal to 387 degrees of frost on the ordinary Fahrenheit scale. Up to the present time this is the greatest cold ever attained, and is more than twice as far below the freezing-point as boiling water is above it.

ACID RESISTING BRICKS.—A brick that will withstand the action of acids and chemicals is one which always attracts the attention of chemical manufacturers. Mr. J. H. Sankey has been selling a brick of this kind for some time now, which has found great favour abroad, in addition to the approbation which it has been accorded in various chemical works near London. Cylinders for packing towers are also made of the same materials. In order to ascertain the suitability of these bricks and cylinders in connection with the manufacture of acids, and for other purposes, they have been submitted amongst other tests, to a trial of an unusually severe character. The bricks and cylinders were first broken, and then heated in contact with a large excess of 80 per cent. sulphuric acid to a temperature of 280° to 290° Fahrenheit for fourteen days. Under the circumstances the amount dissolved was very small, and bore a highly satisfactory relation to the total weight taken for the experiment. These bricks and cylinders, especially the buff ones, are admirably suited for Glover towers, pyrites burners, or for any purpose which involves prolonged contact with acids or alkalis at low or high temperatures.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is decidedly flat, and all products derived from tar are in an unsatisfactory position, pitch not excepted. Benzols have fallen in price considerably, and 90's cannot be sold for more than 1s. 9d., and 1s. 6d. for 50/90's. There is no change of any

moment in anthracene, so that our last quotations hold good for this article.

The sulphate of ammonia market is decidedly quiet, owing to the fact that this is now only the commencement of the month, and prices relapse with certain regularity each month if supplies have been obtained in the meantime. London outside makes may be quoted as £10. 8s. 9d., usual terms and conditions Beckton, £10. 6s. 3d.; Hull and Leith, £10. 7s. 6d.; although it is probable that makers will require 1s. 3d. more on all these quotations.

REPORT ON MANURE MATERIAL.

During the past week the market has been quieter all round, but without any material alteration in values.

There would probably still be sellers of 75/80% Florida phosphate rock at 8d. per unit, and perhaps at a shade less, but for the most part higher prices are required for this grade of rock. South Carolina hot-air-dried river rock offers for early or summer shipment at 6½d. per unit, c.f. and i., in cargoes to United Kingdom, but for Florida Peace River rock more money is required. There are sellers of 70% Florida land pebble phosphate at 7d. per unit, for shipment, c.i.f. to United Kingdom.

River Plate cargoes of bones are worth about £4. 2s. 6d. U. K. or Continent, but we do not hear of any business. Crushed Kurrachee bones offer at £4. 2s. 6d. per ton, for shipment, but do not find buyers at the price. There have been sales of Bombay bone meal, ex quay Liverpool, at £4. 2s. 6d., and that is nearest closing value for anything arrived or near at hand. From store considerably higher prices are required.

The excitement has gone out of the market for nitrate of soda, but prices remain firm. Closing value on spot is 9s. 6d. for ordinary quality, and 9s. 7½d. for refined. Due cargoes are worth 9s. 7½d., and as high as 9s. 8½d. has been paid.

The demand for dried blood for export continues, and the closing value is about 11s. 6d. per unit, though buyers do not see their way to paying this price so far.

MISCELLANEOUS CHEMICAL MARKET.

Business on the whole continues fairly up to the average in all products of the alkali trade. Bleaching powder is in good request, and price unaltered at £7. 10s. nett, on rails at makers' works. Caustic soda has not yet experienced any great improvement in demand, and prices are without change—current quotations being:—F.o.b. Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., 10 ton lots and upwards. Leblanc soda ash steady at prices reported last week, and ammonia alkali, 58%, may be taken at 1½d. to 1½d. per degree, according to period of delivery. There has been a rapid movement in price of chlorate of potash, and with the extreme scarcity of stock, price now quoted for spot delivery is 10d. per lb., though some small resales are offering at 9d. to 9½d. Chlorate of soda nominally 10d. per lb. Recovered sulphur continues to hold a steady position at £4. 5s. f.o.r. makers' works, in bulk. Soda crystals and bicarbonate of soda are without noteworthy movement. Saltcake extremely depressed, and realising 25s. to 30s., in bulk, according to locality. Sulphate of copper £16. per ton, f.o.b. Brown and grey acetates of lime are still quiet, and prices without change. White sugar of lead firm at £26., c.i.f., with fair demand for spot delivery. Acetate of soda slightly easier at £17. 10s. to £17. 15s., c.i.f. Potash, caustic and carbonate, are in steady request, and prices are well maintained. Aniline oil and salt are without material alteration in position. Demand continues brisk for all grades of carbolic acid. Sulphocyanides quiet. Zinc products depressed. Tin crystals are also lower. The general demand for chemicals for manufacturing purposes is still far from satisfactory.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at 46s. 3d. cash. Middlesbrough 35s. cash, and Hematite 45s. 9d. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 13s. 9d. to £45. 15s. cash, and £46. 3s. 9d. to £46. 5s. three months. Tin quiet. Straits closed at £92. 2s. 6d. to £92. 12s. 6d. cash, and £92. 15s. to £93. 5s. three months. Australian, £92. 15s. cash. English ingots, £95. 10s. Lead: Spanish, £9. 13s. 9d.

English £9. 17s. 6d. to £10. Silesian spelter: Ordinary, £17. 5s. Quicksilver: First hands, £6. 7s. 6d., second hands, nominal. Copper shares steady: Cape, 1½ to 1¾. Copiapo, 2½ to 2¾. Libiola 3½ to 3¾. Mason and Barry, 2¾ to 2¾; Rio Tinto, 15½ to 15¾; Tharsis, 4¾ to 4¾; Namaqua, 1 to 1¼; Panulcillo, 10 to 10½.

WOLVERHAMPTON, WEDNESDAY.—Pig iron sales somewhat better, consumers being more disposed to buy forward. Prices, however, low. Northampton 41s. to 42s., delivered here. Derbyshire 42s. 6d. to 44s. Lincolns unaltered. Staffordshire common 36s. upwards, easy; part mines, 42s. to 45s.; all mines, 57s. 6d. Finished iron: Demand low. Best bars, £7. 10s.; common, £5. 12s. 6d.; galvanised sheets, £11. to £11. 5s., Liverpool; and black sheets, doubles, £7. to £7. 5s. Coal strong; forge sorts, 8s. 6d. to 9s.

GLASGOW, WEDNESDAY.—Market firm for Scotch, with small business done at 46s. 6d. cash; closing with buyers at 46s. 3d. cash and one month; sellers ask 46s. 9d. cash and one month. Middlesbrough closes with buyers at 35s. cash, sellers ask 35s. 3d. Hematite closes with buyers at 45s. 9d. cash; sellers ask 46s. 1½d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues in strong request, and prices continue to advance. Lagos has been selling at £28. 10s. per ton, Benin £27., both transit, but Lagos is being held by sellers for higher values. There have been considerable sales during the week. Olive has been moving pretty freely on spot, at prices ranging from £35. 10s. to £42. per tun. Linseed: the improved demand has affected the price, which has risen during the week to 21s. 3d. to 22s. per cwt., in export casks. There is a fair business doing. The advance in price of cottonseed notified last week still continues, Liverpool refined being quoted at 25s. 3d. to 25s. 6d. per cwt., with an upward tendency. Castor oil is firm, with a steady market, good seconds Calcutta having been sold at 2½d. to 2½d. per lb., the latter figure being nearest to present value. First pressure French remains at 2½d. to 2½d. per lb. Tallow: the supply is still scant, but there is a strong market for North American at 31s. 6d. to 32s. 6d. per cwt., and higher prices will probably have to be paid shortly. Resin (common) is still quoted 3s. 10½d., but is quiet generally. Spirits of turpentine have been at 24s. nearly all the week, but have to-day in sympathy with the market been advanced one shilling, sellers now asking 25s. per cwt. Petroleum is quiet, American easy at 5d. to 6d., according to quality; Russian refined, 4½d. per gallon.

COLOURS.—Unaltered. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

The market has ruled steady this week. Manganese: Arrivals are slow and prices are firm. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) quiet, with little doing; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) continues in good demand; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals are small; demand good, both for prompt and forward. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland quiet. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in strong demand, and prices are firm. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufacture; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand.

Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals: The general tone of the market is quiet with the exception of bleaching powder, for which product there is quite an abnormal demand at £7. 15s. per ton, prompt and forward. Caustic soda, 76/77%, £11. per ton. Soda crystals vary from £2. 7s. to £2. 12s. 6d. per ton, according to destination. Rock sulphur, £4. 5s. to £4. 7s. 6d. per ton.

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 7s. 6d. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 5s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; hydrate of barium, £10. per ton net.

South Durham salt steady at 10s. 1d. per ton f.o.b. Tees.

Coals: Trade is still very dull. Shipments have been limited of late, and the home consumption is low, whilst the consumption is still further reduced by the large number of steamers idle. Best Northumbrian steam coal, 8s. 9d. per ton; gas coals weak, with diminished demand, 6s. 6d. to 7s. per ton; bunker and manufacturing coals, dull; coke is quiet, price about 15s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia seems to have already exhausted the recent small boom, and after touching in this market a maximum of £10. 10s. is away back again with the substantial loss of half-a-crown within a few days. There are no reports of any fresh transactions for forward delivery worth mentioning.

In ordinary chemicals, the feature is still the strong position of bleaching powder and chlorate of potash, the latter having made a further rise, and the other giving many signs of moving in the same direction, although the nominal quotation is the £7. 15s. of past few weeks. Sulphate of copper is reported easier; but all the others are unchanged and in them there is the same general absence of activity as formerly.

Mineral oils and solid paraffins are all pretty lively of movement, at the recent large reductions; but there are few prospects of more remunerative figures for makers at present, although the lower gravities of lubricating oils are very firm and may get still dearer.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 74°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 30s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¾d., less 5% Liverpool; nitrate of soda, 9s. 9d.; sulphate of ammonia £10. 7s. 6d. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. 17s. 6d., less 5% Liverpool; paraffin scale (hard), 1¾d., and soft 1¾d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5¼d. a gallon; paraffin oil (burning) 4¼d. to 5½d. according to quality at works, for Scotch buyers (English sales about ½d. lower); ditto (lubricating), 865°, £3. 10s., to £3. 15s. 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were nil.

New Companies.

Joshua Schofield and Sons, Ltd.—CAPITAL £5,000. in shares of £5. each. This company has been formed to acquire and carry on the business of bleachers and dyers, hitherto carried on by Mr. Schofield, under the style of "Joshua Schofield and Sons."

Compagnie des Fours et Petris Mechaniques, Werner Pfleiderer, Paris, Ltd.—CAPITAL £5,000. in £5. shares. This company has been formed to acquire certain property, and to carry on in France and Russia the business of manufacturers of chemical baking machinery, etc.

Swiss Portland Cement Co., Ltd.—CAPITAL £20,000. in shares. The object of the company is to purchase land in Switzerland and to search for, quarry and get chalk, clay, sand, gravel, etc. The subscribers to the memorandum of association are:—H. Spoonham, Kent, cement manufacturer; T. Castle, Strood, cement manufacturer; J. T. Hamson, Buckingham, auctioneer; J. S. J. Towcester, North Hants, solicitor's clerk; H. R. Downing, 20, Abchurch Lane, W.C., hotel cashier; A. H. Marchant, New Malden, Surrey, manager; H. J. Garlick, Towcester, North Hants, solicitor's clerk.

East London (Cape Colony) Wattle Bark Co., Ltd.—CAPITAL £20,000. in shares of £1. each. This company has been formed to grow and sell tanning materials and other products connected with the same industry. The subscribers to the memorandum of association are:—C. E. Weber, 17, Egerton Gardens, S.W., major general; C. Snell, Fulham, electrical engineer; H. J. Ward, 1, Walham Green, E.C., solicitor; C. Howard, 4, Gloucester Square, shipowner; Grant, Highbury Park, N., gentleman; H. G. Rayner, Hammer Lane, E.C., gentleman; H. C. Seddon, Putney, retired colonel, R. E.;

Horrocks, Ltd.—CAPITAL £102,000. in £1. shares. This company has been formed with a view to carrying on in Great Britain and other countries the business of dyers and bleachers, chemists, merchants, india-rubber merchants, etc. The subscribers to the memorandum of association are:—J. Horrocks, Ainsworth, Lancashire, dyer, etc.; C. F. Richardson, Stroud Green, N., accountant; Russell, Forest Hill, S. E., merchant's clerk; J. Davies, Cannon Street, E.C., accountant; W. Brown, 121, Hungerford-road, N., secretary; Greenop, 9, Gracechurch-street, London, E. C., solicitor; J. Gibbins, Peckham, solicitor's clerk.

Bischof's White Lead Syndicate, Ltd.—CAPITAL £30,000. in shares of £100. each. This company has been formed to carry on certain inventions in the United Kingdom and on the Continent the manufacture of white lead and to sell and deal in the same. The subscribers to the memorandum of association are:—J. C. Rees, 13, George-street, S.W., parliamentary agent; J. Hopkinson, 5, Victoria-street, E.C., chemical engineer; J. H. M. S. Stewart, 61, Lambeth-street, London, retired major-general; R. E. G. Bischof, Bloomington, technical chemist; J. G. Wood, 7, New Square, W.C., barrister-at-law; C. Hockford, Westminster, architect; J. Bowsell, Westminster, chemical engineer.

The Patent List.

This list is compiled from Official sources in the Manual of the Technical Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR LETTERS PATENT.

Improved Apparatus for Concentrating Sulphuric Acid. F. Dyson. January 23.
Improvements in the Production of Aluminium. G. Allen, J. Clark and W. Clark. 1,407. January 23.
Smoke Preventing Apparatus. A. R. Sennett. 1,433. January 23.
Filters for Removing Bacteria from Water and Sewage. F. P. 1,448. January 23.
Improvements in the Manufacture of Grape Sugar. B. Dukes. January 23.
Heating and Evaporating Liquids. E. Herz. 1,467. January 23.
Distillation of Substances of High Boiling Point. C. D. Abel. January 23.
Producing Porous Lead for Secondary Batteries. W. P. Thompson. January 24.
Manufacture of Fire Bricks. W. Majert. 1,562. January 24.
Artificial Marbles. F. G. Montagne. 1,582. January 24.
Preventing Spontaneous Ignition of Combustible Materials. Balzberg and B. Egger. 1,587. January 24.
Improvements in Bleaching, &c., Oils, Fats, and Greases. J. C. J. C. Villedien, and W. W. L. Lishman. 1,612. January 25.
Improvements in the Manufacture of Epsom Salts. A. R. Broome. Walsh. 1,626. January 25.
Removing Grease, &c., from Leather. A. Sale and R. Hallett. January 25.

Neutralizing the Alkalinity of Electrolytically or Chemically Purified Sewage. W. Webster. 1,675. January 25.
 Filtering and Purifying Water. W. Webster. 1,676. January 25.
 Manufacture of Cement. W. Webster. 1,677. January 25.
 Guanidine Nitrate. O. Imray. 1,678. January 25.
 Improvements in Combustion of Fuel in Domestic Fire-places. W. Hassall. 1,700. January 25.
 Evaporation and Concentration Apparatus. E. B. Harlock. 1,708. January 25.
 Process and Apparatus for Oxidising Drying Oils. F. Walton. 1,773. January 26.
 Dyes for Stamping Soap. G. D. Macdougald and J. Sturrock. 1,793. January 26.
 Coal and Mineral Working Machinery. C. W. Atkinson. 1,797. January 26.
 Production of Azo Colouring Matters. H. E. Newton. 1,851. January 27.
 Central Draught Anthracite Burner and Domestic Smoke Consumer. B. Fairlee. 1,914. January 28.
 Disintegrators. G. W. Elliott. 1,916. January 28.
 Extracting Gold and Silver from Auriferous and Argentiferous Solutions. C. Raleigh. 1,959. January 28.

Gazette Notices.

PARTNERSHIP DISSOLVED.

C. SPENCE and W. M. SPENCE, under the style of C. Spence and Co., Liverpool, general and chemical brokers.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

BUTT, CHARLES, Whiteparish, Wiltshire, brick, tile, and pottery manufacturer.

Adjudication.

BUTT, CHARLES, Whiteparish, Wiltshire, brick, tile, and pottery manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 28th.

Acetic Acid—
 Holland, 166 pkgs. A. & M. Zimmermann
 " 80 Philipps & Graves

Acetone—
 Holland, 6 pkgs. Stevens & Son

Alkali—
 France, 220 c. Arnati & Harrison

Antimony—
 France, 1 t. B. & F. Wf. Co., Ltd.
 N. Zealand, 41 L. & I. D. Jt. Co.
 Australia, 22 Bk. of N.S.W.
 " 76 A. Smith
 " 75 Pillow, Jones, & Co.
 " 10 H. Bath & Son
 France, 5 Vivian, Younger, & Co.
 Austria, 10 Bolling & Lowe

Asbestos—
 U. States, 476 S. Taylor
 " 480 W. Byford

Barytes—
 Belgium, 45 cks. W. Harrison & Co.
 Holland, 23 A. Zumbek & Co.
 Belgium, 19
 " 36 W. Pope & Co.
 " 10 bgs. J. L. Lyon & Co.
 Holland, 23 cks. Comp. Maritime Belge

Bromine—
 Germany, 13 pkgs. A. & M. Zimmermann

Caoutchouc—
 Carthage, 73 c. Prop. Bull Wf.
 Savanilla, 11 Hoare, Wilson, & Co.
 Madagascar, 218 Proctor Bros.
 Greytown, 12 Mildred, Goyeneche, & Co.
 E. Indies, 12 Ralli Bros.
 Madagascar, 2 M. M. de France
 " 25 Prop. Bull Wf.
 Africa, 1 L. & I. D. Jt. Co.

Castor Oil—
 France, 17 brls. Beresford & Co.
 " 15 J. T. Morton
 " 58 Prichard & Co.
 E. Indies, 85 cs. Anderson, Weber, & Smith

Chemicals (otherwise undescribed)
 Germany, 65 L. & I. D. Jt. Co.
 Italy, 6 F. Boehm
 Germany, 63 pkgs. A. & M. Zimmermann
 " 8 H. Gottstein & Co.
 " 13 Craven & Co.
 Holland, 13 Hernu, Peron, & Co.

Cream of Tartar—
 France, 10 pkgs. M. Ashby, Ltd.
 " 15 B. & F. Wf. Co., Ltd.
 " 3 Smith, Abbott, & Co.
 " 15 W. C. Bacon & Co.
 Italy, 9 Fellows, Morton, & Co.

Dyestuffs—

Aniline
 U. States, 4 pkgs. W. W. Young
Annatto
 Ceylon, 64 cks. Eastwood & Holt
 France, 4 B. & F. Wf. Co., Ltd.

Argols
 Cyprus, 423 pkgs. H. A. Litchfield & Co.
 Italy, 106 Thames S. T. & L. Co., Ltd.

Canaries, Cochineal
 Canaries, 425 B. Jacob & Sons
 " 1 W. M. Smith & Sons

Canaries, Cochineal
 Canaries, 7 pkgs. L. & I. D. Jt. Co.
 " 28 Marshall & French
 " 1 Swanston & Co.
 " 4 W. M. Smith & Sons
 " 5 Kuhner, Henderson, & Co.

Cutch
 China, 400 pkgs. L. & I. D. Jt. Co.
 Germany, 7

Divi Divi
 Savanilla, 469 pkgs. Royal Mail S. P. Co.

Extracts
 France, 3 pkgs. Mess. Parisiennes
 " 30 Beresford & Co.
 Belgium, 1 Sawyer, Sons, & Co.

Fustic
 Honduras, 16 t. W. Shelcott
 " 17 Belize Est. & Prod. Co.

Gambler
 E. Indies, 1,406 pkgs. Adamson, Gilfillan, & Co.
 " 426 L. & I. D. Jt. Co.

Indigo
 E. Indies, 48 cts. Stansbury & Co.
 " 57 Forbes, Forbes, & Co.
 " 76 Elkan & Co.

Indigo
 " 629 Ross & Deering
 " 39 Benecke, Souchay, & Co.
 " 43 F. Huth & Co.
 " 30 J. Owen
 " 33 Ralli Bros.
 " 610 Wallace Bros.
 " 14 H. Johnson & Sons
 " 5 E. Bower & Co.
 " 8 Dipnall & Co.
 " 520 L. & I. D. Jt. Co.

Indigo
 Egypt, 2 G. N. Rly.
 E. Indies, 11 F. Claydon & Co.
 " 20 Walker, Munzie, & Co.
 " 10 H. W. Jewesbury & Co.

Indigo
 " 10 W. Isted
 " 10 W. Laing & Co.
 " 75 Arbuthnot, Latham, & Co.
 " 23 F. W. Heilgers & Co.
 " 15 H. J. Perlbach & Co.

Myrabolams

E. Indies, 566 pkgs. J. P. Alpe & Co.
 " 1,147 Baxter & Hoare
 " 1,334 L. & I. D. Jt. Co.
 " 667 J. Greig
 " 680 Lucas & Spencers Wf.
 " 767 Beresford & Co.
 " 410 R. G. Hall & Co.

Naphthalene

Germany, 31 pkgs. Fleming's Oil Co.

Orchella
 Ecuador, 26 pkgs. Prop. Bull Wf.

Saffron
 Spain, 1 pkg. P. W. Hore & Co.

Sumac
 Cyprus, 2,074 pkgs. H. A. Litchfield & Co.

Italy
 " 50 Vokins & Co., Ltd.
 " 843 J. Kitchin, Ltd.
 " 400 Sollas & Sons
 " 270 Galbraith, Pembroke, & Co.

Italy
 " 350 W. Shelcott
 " 28 Blundell, Spence, & Co.

Tanners' Bark
 Natal, 4 L. A. & W. Nesbitt
 Ecuador, 1 S. Harris & Sons

Turmeric
 E. Indies, 254 pkgs. Hoare, Wilson, & Co.

U. States
 " 51 L. & I. D. Jt. Co.
 " 111 H. Lewis & Peat

Valonia
 A. Turkey, 19 t. A. & W. Nesbitt
 " 50 Anning & Cobb

Farina—
 Holland, 50 pkgs. J. Knill & Co.
 " 56 T. H. Lee
 " 20 Dutrulle, Solomons, & Co.

Gamboge—
 E. Indies, 2 cs. L. & I. D. Jt. Co.

Glucose—
 U. States, 50 pkgs. 70 c. Pillow, Jones, & Co.
 " 200 1,100 c. H. W. Peabody & Co.
 " 20 110 H. Johnson & Sons

Glucose
 " 50 296 J. Knill & Co.
 " 100 557 G. White
 " 2,050 2,275 Fellows, Morton, & Co.

Glucose
 " 40 222 J. Keiller & Son
 " 2,299 3,679 Union L. Co., Ltd.
 " 850 4,098 R. G. Hall & Co.
 " 300 300 Barratt, Tagant, & Co.

Glucose
 France, 200 200
 U. States, 200 1,100 T. M. Duche & Sons

Glucose
 " 650 650 Boake, Roberts, & Co.
 " 100 595 Page, Son, & East

Glucose
 " 960 1,465 L. Sutro & Co.
 " 780 4,295 Prap. Chamblin, Wf.

Iodine—
 Germany, 155 pkgs. A. Gibbs & Sons

Manure—
 Germany, 80 t. Co-op. Lightgr. As.
 " 100 Miller & Johnson
 U. States, 22 Leach & Co.
 Germany, 10 Anderson, Weber, & Co.

Methyl Alcohol—

U. States, 100 brls. W. Johnston & Co.
 Germany, 10 cks. Elkan & Co.

Ochre—
 France, 81 cks. W. Harrison & Co.
 " 1 Stobbs, Wilson, & Co.
 " 8 J. & T. Seddo & Co.
 Holland, 29 pkgs. Philipps & Graves

Painters' Colours—
 Germany, 16 cks. Becker & Ulrich
 " 3 Craven & Co.
 " 10 pkgs. T. H. Lee
 Belgium, 9 T. Palmer
 France, 16 Flageollet & Co.
 U. States, 47 A. Hughes
 " 150 J. Melvin
 " 1 Beck & Pollitzer
 Germany, 11 L. & I. D. Jt. Co.
 France, 2 H. Gluck & Co.
 Germany, 5 Philipps & Graves

Paraffin Wax—
 U. States, 123 brls. C. Ogleby & Co.
 " 445 H. Hill & Sons
 " 3,410 J. H. Usmar & Co.
 " 2,500 Anglo-Amer. Oil Co.
 " 280 pkgs. Williams, Torrey, & Co.

Paraffin Wax
 Germany, 8 cs. T. H. Lee

Phosphate Rock—
 U. States, 999 t. Anglo Contl. G. Wks.

Plumbago—
 Ceylon, 115 brls. R. G. Hall & Co.
 " 359 Prop. Sun Wf.
 " 80 Marshall & French
 " 286 J. Thredder, Son, & Co.
 " 119 J. Barber & Co.
 France, 2 cks. Hernu, Peron, & Co.

Potassium Bicarbonate—
 Holland, 54 pkgs. A. & M. Zimmermann

Potassium Carbonate—
 France, 110 c. J. A. Reid
 Germany, 100 Fellows, Morton, & Co.

Potassium Hydrate—
 France, 11 pkgs. Spies Bros. & Co.

Potassium Sulphate—
 France, 278 pkgs. F. W. Berk & Co., Ltd.

Pyrites—
 Spain, 1,166 t. C. Tennant, Sons, & Co.
 " 978 Anderson, Anderson, & Co.

Rosin—
 U. States, 1,915 brls. Fairclough, Dodd, & Co.
 France, 14 Burrell & Co.
 U. States, 2,161 Prod. Brokers Co.
 " 1,850 Moore & Hole
 " 800 F. & S. Chiesman & Co.
 " 200 H. Hill & Sons
 " 250 G. Nuttall & Co.

Saltpetre—

E. Indies, 202 bgs. L. & I. D. Jt. Co.
654 Co-op. Lightge. Assn.
Germany, 205 cks. P. Hecker & Co.

Sodium Acetate—

France, 15 pkgs. W. Bauer & Co.
" 10 S. F. Waters & Co.

Stearine—

France, 137 bgs. Beresford & Co.
Holland, 31 Robinson, Roberts,
& Co.

Sulphur—

Italy, 200 t. Brandram Bros.
" 5 M. D. Co.
" 200 W. C. Bacon & Co.
" 5 G. Boor & Co.

Talc—

E. Indies, £20 J. P. Alpe & Co.

Tallow—

Queensland, 1 ck. Dyster, Nalder,
& Co.
" 57 cks. Hicks, Nash, & Co.
Sydney, 100 J. Morrison & Co.
Melbourne, 5 Dalgaty & Co., Ltd.
Queensland, 41 Elkan & Co.
" 93 Anning & Cobb
" 212
Sydney, 572 pkgs. Pillow, Jones,
& Co.
" 200 Hoare, Wilson,
& Co.
Germany, 87½ J. Greig
" 10 Roth, Schmidt,
& Co.
Melbourne, 181 Elkan & Co.
" 105 W. Pope & Co.
Sydney, 57 Aust. Meat Co.
" 154 Hicks, Nash, & Co.
" 351 Sollas & Sons
" 94 Culverwell, Brooks,
& Co.

N. Zealand, 18
Queensland, 71
" 53
" 492
" 409
Sydney, 992
Melbourne, 420
" 124
Sydney, 622
" 108
" 100
" 129
" 216
N. Zealand, 3 N. M. & A. Co. of N. Z.
" 78 N. Z. L. & M. A. Co.
U. States, 367 pkgs. A. B. Curtis & Co.
Belgium, 3 G. Haller & Co.
" 9 cks. H. Hill & Sons
Adelaide, 195 Kaul & Haenlein
Melbourne, 67 J. Greig
Sydney, 95 J. Graves
" 39 Horne & Co.
" 97 Dangan, Grant, & Co.
" 407 Elkan & Co.
" 340 A. B. Curtis & Co.

Tallow and Stearine—

U. States, 41 cks. A. Shaw & Co.
" 8 W. W. Young

Tartaric Acid—

Holland, 22 pkgs. Middleton & Co.

Turpentine—

N. Zealand, 400 brls. Fairclough, Dodd,
& Jones
Savannah, 2,000 Nicholl & Knight
" 1,573 Prod. Brokers Co., Ltd.

Ultramarine—

Holland, 20 cks. Hernu, Peron,
& Co.
" 7 cks. 2 pkgs. Philipps &
Graves

Belgium, 9 W. Harrison & Co.
Germany, 20 cks. G. Steinhoff

Varnish—

Germany, 2 pkgs. Suter, Hartmann's
Compn. Co.

White Lead—

Belgium, 12 cks. O'Hara, Matthews,
& Co.
" 35 Colthurst & Harding
Holland, 10 Burrell & Co.
" 9 A. & M. Zimmermann
" 1 Spies Bros. & Co.
U. States, 55 Taylor & Pinnock

Zinc Oxide—

Holland, 100 brls. M. Ashby, Ltd.
" 22 cks. J. Matton

Zinc Sulphate—

Germany, 15 pkgs. F. Smith

LIVERPOOL.

Week ending January 26th.

Acetate of Lime—

N. York, 3,661 bgs.

Aluminium—

N. York, 11 bxs.

Boracic Acid—

Hamburg, 3 brls.

Boracite—

Panderma, 3,704 bgs. 100 t. Roberts
& Evans

Castor Oil—

Bordeaux, 20 cks. Ralli Bros.
Calcutta, 450

Chemicals (otherwise undescribed)

In transit, 8 c. Cunard S. S. Co.,
Ltd.

In transit, 46 pkgs.

Colours—

Hamburg, 12 bxs. J. T. Fletcher
& Co.
Antwerp, 5 brls.

Rotterdam, 14 cks.

Cottonseed Oil—

N. York, 10 cks. M. Bell
" 35 brls.

Dyestuffs—

Annatto
Bordeaux, 10 cks.

Argols
Bordeaux, 34 cks.

Divi Divi
Amsterdam, 170 bgs. Browne, Geveke
& Co.

Extracts

N. York, 30 kgs. A. J. White, Ltd.
Marseilles, 5 cks.
N. York, 10 brls. 50 bxs. F. Ree
" 11 Miller & Co.

Nantes, 150
" 380

Fustic

Havre, 2,245 ps. Cunard S. S. Co.,
Ltd.

Indigo

Calcutta, 105 chts.

Madder

Smyrna, 24 bls.
Rotterdam, 5 cks.

Myrabolama

Calcutta, 338 bgs. 3,132 pkts.

Orchella

Lisbon, 23 bls. A. Christiansen
" 23 Edwards Bros.
" 390

Valonia

Syria, 50 bgs. Androulis Bros.
" 150 G. T. Scrin
Smyrna, 54 t. P. T. Apostolo
" 319 bgs. Essayan, Shakum
& Co.
" 279 D. A. Galatti & Co.
" 100 t. 3,814 bgs.

Glucose—

N. York, 150 brls.
Hamburg, 50 cks.

Guano—

Cadiz, 13 t.

Horn Piths—

Cadiz, 10 t.

Limestone—

Antwerp, 2 crts

Manganese—

Porman, 2,000 t.
Antwerp, 1 bskt.
Calcutta, 1,531 bgs.
Kobe, 400 t.

Naphtha—

N. York, 7,223 brls.

Ochre—

Marseilles, 24 brls.
Bordeaux, 43 cks.

Paint—

Boston, 10 cks.

Paraffin Scale—

Baltimore, 522 brls.
N. York, 100 brls. G. B. Taylor

Phosphate—

Brunswick, Ga., 474½ t. W. & W. H.
Stead
" 990½ t.

Phosphate Rock—

Pt. Royal, 3,001 t.

Potash—

Dunkirk, 72 dms.
Rotterdam, 20 cks.

Pyrites—

Huelva, 2,474 Matheson & Co.
" 1,153 Tennants & Co.

Rosin—

Baltimore, 1,000 brls.
N. York, 250 R. Crooks & Co.

Salt—

Hamburg, 100 cks.

Soap—

Marseilles, 57 cks. 100 bxs.
N. York, 1 cs. J. Moss & Co.
" 5 Colgate & Co.

Soapstone—

Bordeaux, 100 bgs. G. G. Blackwell

Sodium Silicate—

Rotterdam, 3 cks.

Sodium Sulphate—

Boston, 5 brls.

Stearine—

Boston, 10 brls.
Antwerp, 10 cks. 13 bgs.

Sulphur—

Huelva, 1,080 t. Matheson & Co.

Tallow—

N. York, 180 tcs. 90 hhds.
Boston, 16
Rouen, 17 cks. 69 bgs. Co-op. W'sale
Soc., Ltd.
Philadelphia, 100 brls. 50 hds.

Tartar—

Bordeaux, 5 cks.

Tartaric Acid—

Rotterdam, 30 cks.

Ultramarine—

Rotterdam, 24 cks. 2 cks.

Varnish—

N. York, 13 cks. Larrinaga & Co.
Antwerp, 1 brl.

White Lead—

Antwerp, 1 brl. J. T. Fletcher
& Co.

Zinc Ashes—

Marseilles, 8 brls.
Antwerp, 9 cks. J. T. Fletcher
& Co.

Zinc Oxide—

Antwerp, 15 brls. J. T. Fletcher
& Co.

Zinc White—

Amsterdam, 2 cks.
Rotterdam, 50 O. & H. Marcus

HULL.

Week ending January 28th.

Acetic Acid—

Rotterdam, 8 bails. Hutchinson & Son

Asbestos—

Flushing, 1 bl. Wilson, Sons & Co.,
Ltd.

Barytes—

Antwerp, 46 cks. Bailey & Leatham
" 68 H. F. Pudsey
Bremen, 50 Tudor & Sons
" 19

Chemicals (otherwise undescribed.)

Bremen, 5 cks. 1 ck. Veltmann & Co.
Antwerp, 12 Wilson, Sons & Co.,
Ltd.

Rotterdam, 2 cks. 7 pkgs. W. & C. L.
Ringrose

Colours—

Bremen, 1 cs. J. Pyefinch & Co.
" 5
Flushing, 113 167 cks. Wilson, Sons
& Co., Ltd.

Rotterdam, 39 pkgs. W. & C. L. Ringrose
Hutchinson & Son

Antwerp, 10 cks. Wilson, Sons & Co.,
Ltd.

Cottonseed Oil—

N. York, 1,500 brls. Wilson, Sons &
Co., Ltd.

Dyestuffs—

Alizarine
Rotterdam, 8 cks. W. & C. L. Ringrose

Aniline
Flushing, 1 ck. Wilson, Sons & Co.,
Ltd.

Madder
Rotterdam, 2 cks. Hutchinson & Son
W. & C. L. Ringrose

Sumac
Palermo, 375 bgs. Wilson, Sons & Co.,
Ltd.

Bordeaux, 50 bls. Rawson & Robinson

Farina—

Harlingen, 1,157 bgs.
Ghent, 262 cs. Wilson, Sons & Co.,
Ltd.

Glucose—

Rotterdam, 50 bgs. Hutchinson & Son
N. York, 350 brls.

Gypsum—

Rouen, 200 bgs. Rawson & Robinson

Limestone—

Antwerp, 3 cs. Wilson, Sons & Co.,
Ltd.

Phosphate—

Pt. Royal, 1,000 t. Hammond, Emes
& Co.
St. Valery, 120 W. Scott

Potash—

Dunkirk, 94 pkgs. Wilson, Sons & Co.,
Ltd.

Saltpetre—

Antwerp, 305 bgs. Wilson, Sons & Co.,
Ltd.

Soap—

Bari, 60 cs. Wilson, Sons & Co.,
Ltd.

Stearine—

Amsterdam, 123 pkgs. Wilson, Sons &
Co., Ltd.

Antwerp, 12 bgs. Bailey & Leatham
Hutchinson & Son

Sulphur—

Catania, 620 pkgs. Wilson, Sons & Co.,
Ltd.

" 27 100 t.

Talc—

Trieste, 20 bgs. Wilson, Sons & Co.,
Ltd.

Tartar—

Bordeaux, 11 cks. Rawson & Robinson

Tartaric Acid—

Rotterdam, 2 cks. Hutchinson & Son

Turpentine—

Bordeaux, 4 brls. Rawson & Robinson

Ultramarine—

Rotterdam, 2 cks. 1 cs. Hutchinson &
Son

Varnish—

Antwerp, 5 cks. Wilson, Sons & Co.,
Ltd.

White Lead—

Antwerp, 79 cks. Bailey & Leatham
Rotterdam, 23 A. Sanderson & Co.

Zinc White—

Rotterdam, 10 cks.

GLASGOW.

Week ending February 2nd.

Aniline Colours—

Rotterdam, 2 cs. J. Rankine & Son

Antimony—

Antwerp, 1 cs.

Barium Sulphate—

Antwerp, 300 bgs.

Castor Oil—

Antwerp, 112 cks.
Calcutta, 1,336 cs.

Colours—

Antwerp, 1 ck.
Rotterdam, 2 cs. J. Rankine & Son

Dyestuffs—

Alizarine
Rotterdam, 29 cks.
" 41 brls. J. Rankine & Son

Extracts
Antwerp, 20 cks.

Indigo
Rotterdam, 13 chts. J. Rankine & Son

French Chalk—

Fiume, 100 bgs.

Glucose—

N. York, 728 brls.

Iodine—

N. York, 1 bx.

Phosphate of Lime—

Ghent, 500 bgs.

Pitch—

Antwerp, 9 cks.

Potash—

Rotterdam, 66 cks.

Potassium Cyanide—

Antwerp, 100 cs.

Pyrites—

Huelva, 1,713 t. Tharsis Co

Rosin—

N. York, 250 brls.

Soap —	
Fiume, 199 cs.	
Tallow —	
N. York, 60 tics.	
Tar —	
N. York, 340 brls.	
Tartar —	
Roudeaux, 5 cks.	
White Lead —	
Rotterdam, 3 cks.	
Rotterdam, 27	
Zinc Ashes —	
Antwerp, 16 cks.	
Zinc Oxide —	
Antwerp, 30 cks.	

TYNE.

Week ending January 28th.

Alum Earth —	
Hamburg, 17 cks.	Tyne S. S. Co.

Castor Oil —	
Dronheim, 6 cs.	
Farina —	
Hamburg, 20 bgs.	Tyne S. S. Co.
Pyrites —	
Huelva, 2,046 t.	Scott Bros.
Saltpetre —	
Hamburg, 10 cks.	Tyne S. S. Co.
Sulphur —	
Rotterdam, 1 bg.	Tyne S. S. Co.
Ultramarine —	
Hamburg, 10 cks.	Tyne S. S. Co.
Rotterdam, 20 cs.	"

GOOLE.

Week ending January 18th.

Alkali —	
Calais, 10 cks.	
Anthracene —	
Boulogne, 1 cs.	

Antimony —	
Boulogne, 1 ck.	
Caoutchouc —	
Boulogne, 4 cks.	
Dyestuffs —	
Alizarine	
Rotterdam, 107 pkgs.	
Cutch	
Hamburg, 5 cks.	
Fustic	
Hamburg, 341 pcs.	
Dyestuffs (otherwise undescribed)	
Boulogne, 6 cks. 49 pkgs.	
Farina —	
Hamburg, 100 bgs.	
Glucose —	
Calais, 300 bgs.	
Potash —	
Dunkirk, 10 cks. 64 dms.	
Pyrites —	
Seville, 1,240 t.	

Saltpetre —	
Rotterdam, 100 bgs.	
Soda —	
Rotterdam, 5 brls.	
Waste Salt —	
Hamburg, 213 cks.	
Zinc Oxide —	
Antwerp, 20 brls.	

GRIMSBY.

Week ending January 21st.

Chemicals (otherwise undescribed)	
Antwerp, 2 cks.	
Farina —	
Hamburg, 100 bgs.	
Size —	
Antwerp, 17 cks.	
Zinc Ashes —	
Antwerp, 31 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending February 1st.

Acetic Acid —	
Algoa Bay, 17 c.	£18
Acids —	
Singapore, 12 dms.	£13
Natal, 1 cs.	22
Capetown, 3 kgs. 3	24
Alkali —	
Sydney, 1 t. 11 c.	£26
Philadelphia, 3 6	80
Alum Cake —	
Calcutta, 204 cks.	£141
Ammonia (Liquid) —	
Bombay, 6 cs.	£50
Ammonium Carbonate —	
Santos, 12 cs.	£26
Lisbon, 5 c.	7
New York, 80 brls.	450
Ammonium Chloride —	
Melbourne, 4 cks.	£27
Seville, 10 c.	19
Salonica, 1 t. 1	36
Ammonium Sulphate —	
Osund, 110 t. 9 c.	£1,163
Ghent, 80 11	840
Philadelphia, 51 13	580
Berlice, 19 19	220
Beemen, 133 15	1,348
Hamburg, 520	5,350
Demerara, 125 1	1,294
Anhydrous Ammonia —	
Frumentie, 4 cs.	£32
Arsenic —	
Boston, 55 t.	£700
Bleaching Powder —	
E. London, 20 cs.	£18
Penang, 3 t.	42
Boric Acid —	
Sydney, 1 t.	£39
Borax —	
Sydney, 1 t. 10 c.	£47
Carbolic Acid —	
Trisve, 400 cks.	£863
Rotterdam, 40	180
E. London, 11 cs.	13
New Orleans, 80 dms.	370
Caustic Soda —	
Algoa Bay, 4 t. 12 c.	£158
Natal, 3 6	50
Sydney, 11	15
E. London, 1 6	44
Chemicals (otherwise undescribed)	
Capetown, 1 t. 4 c.	£30
Natal, 26 cs.	44
Citric Acid —	
Algoa Bay, 2 c.	£17
Bombay, 2	27
Hamburg, 2 cks.	83
Rotterdam, 5	41
Christiana, 5	40
Nelson, 1	12

Coal Products —	
Alizarine	
Bombay, 71 cks.	£355
Aniline	
Calcutta, 1 cs.	£12
Hobart, 10	10
New York, 22 pkgs. 44 brls.	482
Valencia, 1 cs.	30
Aniline Oil	
Rotterdam, 12 dms.	£400
Genoa, 10	350
Barcelona, 6 brls.	85
Anthracene	
Rotterdam, 803 cks.	£4,907
Dusseldorf, 67	365
Cologne, 67	348
Benzol	
Terneuzen, 16 dms.	£160
Hamburg, 19 cks.	179
Rotterdam, 76 20 pms.	614
Creosote	
Baltimore, 8 cs.	£79
Boulogne, 1	11
Naphtha	
Melbourne, 12 dms.	£12
Sydney, 19	13
Treport, 26 brls.	65
Naphthalene	
Sydney, 6 cks.	£10
Paraffin Wax	
Launceston, 50 bgs.	£130
Hobart, 59 cs.	181
Pitch	
Boston, 600 brls. 100 cks.	£315
Dunkirk, 450 t.	650
Havre, 33	89
Alexandria, 200	78
Terneuzen, 1,200	1,679
Salonica, 50	21
Calcutta, 100	75
Tar	
Sydney, 250 dms. 30 brls.	£90
Natal, 200	30
Philadelphia, 100 cks.	59
Bombay, 12	50
Alexandria, 28	30
Tar Oil	
Gothenburg, 15 brls.	£20
Treport, 100 cks.	43
Toluol	
Rotterdam, 48 rmls. 24 cks.	£215
Copper Sulphate —	
Canterbury, 1 t.	£18
Bordeaux, 10	180
Wellington, 2 10 c.	8
Dunedin, 2 10	41
Cream of Tartar —	
Wellington, 2 t. 8 c.	£197
Rio de Janeiro, 3	13
Launceston, 5	25
Auckland, 14	56
Nelson, 1	82
Disinfectants —	
Algoa Bay, 26 pkgs.	£38
Sydney, 5 c.	20
Dried Blood —	
Treport, 29 t. 10 c.	£220

Flowers of Sulphur —	
Algoa Bay, 1 t. 2 c.	£11
Guano —	
Demerara, 13 t.	£160
Jersey, 135	1,240
Magnesium Carbonate —	
Seville, 14 c.	£95
Manure —	
Bordeaux, 34 t. 6 c.	£170
Jersey, 131 8	1,250
Guernsey, 2 10	25
Montreal, 1	25
Martinique, 24 13	250
Demerara, 80	805
Berlice, 40	405
Genoa, 491 10	2,891
Jersey, 221	1,695
Oxalic Acid —	
Dunkirk, 10 t. 6 c.	£280
Phosphorus —	
Lisbon, 2 cs.	£22
Potassium Bichromate —	
Hobart, 3 c.	£10
Potassium Chlorate —	
Calcutta, 6 c.	£22
Seville, 3	10
Potassium Cyanide —	
Launceston, 2 c.	£9
Delagoa Bay, 5	23
Saltpetre —	
E. London, 10 c.	£11
Rio de Janeiro, 3 t. 2	69
Bahia, 3 6	74
Oporto, 15 6	306
Sheep Dip —	
Falklands, 50 dms. 15 cs.	£160
Calcutta, 60	35
Natal, 50 162 pkgs.	35
Soda Ash —	
Hobart, 4 t.	£24
Soda Crystals —	
King Geo. Sound, 1 t.	£7
Natal, 1 15 c.	7
Demerara, 10	3
E. London, 1 11	7
Capetown, 1	4
Auckland, 1 3	5
Singapore, 1 13	7
Sodium Bicarbonate —	
Wellington, 1 t. 10 c.	£11
Auckland, 1 5	8
Nelson, 1	8
Cadiz, 13	6
Sodium Sulphate —	
Ghent, 40 t.	£60
Strontium Nitrate —	
Calcutta, 14 c.	£21
Sulphur —	
Sydney, 5 t.	£45
Sulphuric Acid —	
Penang, 1 t. 5 c.	£13
Natal, 25 cs.	25

Superphosphate —	
Cherbourg, 380 t.	£1,140
Bordeaux, 50	140
Passages, 49 8 c.	147
Jersey, 5	20
Tartaric Acid —	
Sydney, 1 t.	£100
Wellington, 8 c.	41
Cadiz, 7	44

LIVERPOOL.

Week ending February 1st.

Acetate of Lime —	
Winnipeg, 11 c.	£7
Alkali —	
New York, 39 t. 12 c. 2 q.	£213
Alum —	
Melbourne, 3 t.	£15
Capetown, 1 7 c.	7
Lisbon, 5 16	28
Portland, M., 1 9	9
Calcutta, 69 7 3 q.	375
Mayaguez, 8	14
Seville, 17	14
Ammonium Carbonate —	
Philadelphia, 2 t.	£65
Ammonium Chloride —	
Naples, 1 t. 11 c. 1 q.	£53
Marseilles, 1 12	51
Patras, 4	7
Beyrout, 10	16
Philadelphia, 14 15	334
Barcelona, 1	11
Mayaguez, 3 q.	8
Ammonium Sulphate —	
Nantes, 20 t. 18 c.	£214
Sourabaya, 332 15 1 q.	3,322
Gr. Canary, 12 11 2	124
Baltimore, 220 19 3	2,390
Malaga, 55 18 1	565
Hamburg, 50	513
Antimony —	
B. Ayres, 1 cs.	
Arsenic —	
Syria, 3 t. 15 c.	£4
Asbestos —	
Shanghai, 1 cs.	
Barytes —	
Bombay, 90 kgs.	
Bleaching Powder —	
Baltimore, 39 cks.	
Bilbao, 12	
Bombay, 2,100	13 cs.
Boston, 2	325
Calcutta, 2	
Corunna, 2	
Dunkirk, 17	
Genoa, 98	
Ghent, 34	

New York , 348 Oporto , 26 Passages , 12 Rio de Janeiro , 5 St. Jerome , 22 Antwerp , 13 Constantinople , 24 Ghent , 85 Lisbon , 12 Malaga , 9 New York , 24 t. 12 c. £210 Newport News , 25 213 Alexandria , 9 2 q. 6 Baltimore , 90 4 745 Boston , 51 9 438	China Clay— Bombay , 35 t. Boston , 605 Genoa , 95 bgs. New York , 300 cks. Magog, Po , 80 Chloroform— Portland, M. , 2 cs. Citric Acid— Lisbon , 5 c. £47 Coal Products— Aniline New York , 11 cks. Aniline Colours Bombay , 7 cs. Boston , 1 bx. 6 cks. 3 kgs. Aniline Oil New York , 49 dms. Aniline Salts New York , 100 cs. 12 cks. Rouen , 5 pus. Pitch Alexandria , 3 cks. Cadiz , 672 t. Sezzia , 1,378 4 c. Rouen , 1 ck.	Pt. Said , 30 San Juan , 1 Santos , 2 Taltal , 49 cs. Addab , 21 10 Antofagasta , 10 Calcutta , 50 C. C. Castle , 9 8 Capetown , 18 84 Gr. Canary , 95 Hioho , 75 New York , 4 Ponce , 10 63 Smyrna , 50 Vera Cruz , 6 cs. 2 9 Valparaiso , 9 Victoria , 33 Painters' Colours— Alexandria , 30 brls. Bombay , 135 cs. 710 kgs. Calcutta , 1 3 cks. Gaboon , 10 Manila , 1 2 New York , 2 250 Rio de Janeiro , 4 1 Baltimore , 210 Beyrout , 24 B. Ayres , 114 Capetown , 2 cs. 53 20 E. London , 3 8 22 Havana , 3 Matadi , 32 dms. 4 Mayaguez , 3 tcs. 3 2 Odessa , 10 Piræus , 1 cs. 4 Porto Alegre , 3 15 Santos , 2 Savannah , 3 Smyrna , 200 Vera Cruz , 3 Valparaiso , 5 68 dms.	Salt Cake— Dunedin , 10 t. 11 c. Philadelphia , 325 9 Baltimore , 190 13 Wellington, N.Z. , 2 4 Saltpetre— Callao , 13 c. 2 q. Savannah , 1 t. 16 3 Maranham , 10 Para , 2 10 Sheep Dip— Punta Arenas , 4 t. 10 c. M. Video , 1 1 1 q.
Borax— Salonica , 3 c. 2 q. £10 Antwerp , 7 t. 14 2 237 Melbourne , 4 122 Ghent , 3 1 90 Montreal , 1 6 37 Rio Grande do Sul , 5 3 10 Carbolic Acid— Hioho , 2 t. 12 c. 3 q. £108 N. York , 5 cks. 45 Hamburg , 8 19 3 415 Caustic Potash— Orillia , 8 c. £9 Caustic Soda— Algiers , 100 dms. Amsterdam , 20 Ancona , 10 Baltimore , 540 brls. Barcelona , 344 20 80 cks. Bari , 35 Bombay , 50 kgs. Bordeaux , 17 50 Boston , 450 241 Carril , 34 Genoa , 172 20 Hamburg , 67 10 Hioho , 250 Malta , 17 Maracaibo , 10 Marseilles , 495 M. Video , 150 New York , 1,900 100 Oporto , 90 Passages , 20 14 30 cks. Philadelphia , 100 Pt. Elizabeth , 10 Puerto Cabello , 23 Rio de Janeiro , 40 Rotterdam , 65 Santander , 6 Seville , 255 60 Trinidad , 25 Valencia , 90 10 Adelaide , 3 Alicante , 6 Almeria , 6 Antwerp , 10 Bahia , 10 Baratavia , 85 B. Ayres , 20 Calcutta , 297 10 36 kgs. Capetown , 9 Constantinople , 36 E. London , 13 cs. Fiume , 126 Havana , 18 Lisbon , 8 Madeira , 8 Melbourne , 2 bxs. 5 pkgs. Naples , 97 Odessa , 80 Omaha , 50 Penang , 60 Pernambuco , 45 Piræus , 50 Pt. Louis , 35 Rouen , 95 Samarang , 60 Smyrna , 50 Sydney , 6 bxs. 10 Venice , 56	Colours— Para , 3 kgs. 1 cs. Capetown , 20 New York , 1 ck. Copperas— Bombay , 32 t. 15 c. £58 Copper Sulphate— Gibraltar , 9 t. 16 c. £147 Odessa , 30 2 1 q. 475 Lisbon , 16 18 1 246 Genoa , 28 19 1 434 Rotterdam , 2 2 33 Palermo , 10 3 2 155 Naples , 10 3 2 160 Oporto , 23 4 3 395 Bordeaux , 191 4 1 2,830 Valparaiso , 30 16 3 516 Trieste , 6 9 98 Pernambuco , 12 10 Cadiz , 10 9 Flowers of Sulphur— San Juan , 4 c. £2 Maranham , 4 Guano— Valencia , 59 t. 19 c. £155 Malaga , 46 395 Gypsum— New York , 95 t. 8 c. £331 Horn Piths— Boston , 58 bls. Iron Oxide— Philadelphia , 35 cks. * £280 Iron Sulphate— Mersyne , 3 t. 19 c. 2 q. £7 Smyrna , 4 9 3 9 Lime— Old Calabar , 50 cks. Pernambuco , 9 pns. Litharge— Oporto , 2 cks. Magnesia— B. Ayres , 30 cs. Havre , 70 M. Video , 3 dms. 1 ck. Magnesium Citrate— Rio de Janeiro , 5 cs. Magnesium Sulphate— Bombay , 22 bgs. 100 kgs. Manganese Sulphate— Winnipeg , 11 c. £12 Manure— Bordeaux , 1 t. 6 c. £8 Havre , 301 2 3 q. 856 Cherbourg , 400 2 1,181 St. Nazaire , 450 3 1 1,374 Gr. Canary , 10 38 Metallic Sodium— Rotterdam , 2 t. 5 c. £483 Mirbane Oil— New York , 2 dms. Nitrate of Lead— Lisbon , 7 c. £10 Paint— Adelaide , 14 cks. Cape Haiti , 2 5 dms. Gibraltar , 4 Jeremie , 1 50 kgs. Las Palmas , 1 brl. Malta , 30 700 Manila , 8 Mendoza , 21 Para , 21	Paraffin Wax Smyrna , 1 cs. Genoa , 15 Hong Kong , 33 dms. Leghorn , 5 15 bgs. Phosphorus— Trinidad , 2 cs. £22 Tampico , 10 110 Plumbago— Rio de Janeiro , 1 ck. Potash— Beyrout , 3 c. £5 Potassium Bichromate— Vera Cruz , 1 t. 3 c. £48 Passages , 1 13 3 q. 70 Potassium Chlorate— Boston , 5 t. £260 Genoa , 2 5 c. 120 Kobe , 5 293 Vera Cruz , 16 67 Havana , 4 10 325 New York , 38 10 2,070 Sydney , 16 281 Shanghai , 8 15 496 Hioho , 30 1,703 Potassium Prussiate— Lisbon , 10 c. 1 q. £49 Salt— Algoa Bay , 8 t. 18 c. Ambriz , 11½ Benin , 25 Bonny , 60 Conakry , 50 Drammen , 573 E. London , 44½ Melbourne Wharf , 92 3 Mussera , 6½ New Orleans , 65 York , 215 Old Calabar , 78 11 Opobo , 55 15 Pensacola , 400 St. Paul , 10 Salt Pond , 50 Sierra Leone , 205 12 Sydney , 102 Trinidad , 71 Abonema , 8 18 Atassa , 200 Antwerp , 375 Appam , 20 Bakana , 30 7 Baguma , 5 7 C. C. Castle , 19½ Melbourne , 464 Monrovia , 24 11 Para , 100 Rio de Janeiro , 1 12 San Pedro , 6 Santos , 9 Valparaiso , 13 Winnebago , 20	Soda Alkali— Genoa , 65 brls. Leghorn , 60 Smyrna , 60 Soda Ash— Antwerp , 10 cks. Baltimore , 892 1,040 bgs. 2 q. B. Ayres , 124 Cadiz , 4 Campos , 25 Chicago , 100 Constantinople , 9 Copenhagen , 400 Fiume , 80 Genoa , 40 Hamilton , 400 Malta , 5 Montreal , 40 New York , 1,207 1,796 Oporto , 22 Porto Alegre , 89 Puerto Cabello , 10 Rio Grande do Sul , 10 de Janeiro , 20 Samos , 2 Smyrna , 42 Sydney , 302 Tampico , 20 Trieste , 33 80 Barcelona , 20 Boston , 471 3,076 Calcutta , 75 Callao , 70 kgs. 44 Corfu , 15 Ghent , 15 Leghorn , 2 30 Madeira , 2
Chemicals (otherwise undescribed) Trebronde , 4 c. £6 Oporto , 4 6 Tunis , 12 18 Mersyne , 1 brl. 15 29 Samsoun , 1 6 Venice , 1 t. 36 Genoa , 7 10 Calcutta , 3 102 New York , 5 7 118 Boston , 3 14 82 Lisbon , 1 34 Philadelphia , 12 18 284 Corfu , 16 c. £25 Beyrout , 1 t. 32 Alexandria , 3 7 2 q. 110 Yokohama , 1 36 Antwerp , 5 9			

Maranhã,	223 cks.	35 brls
Melbourne,	400 bgs.	145
M. Video,	3,289	
Philadelphia,	17	
Samarang,	17	
San Francisco,	171	
Sbertrooke,	96	
Valparaiso,	25	
Wellington,	80	
Yokohama,		125
Soda Crystals—		
Alcoa Bay,	15 cks.	
Athens,	13 brls.	
Halifax,		5 kgs.
Malta,	50	
Messyrie,	20	
New York,	420	
Oporto,	34	
Passage,	16	
Pt. Elizabeth,	20	
Batavia,	20	134
Boston,	807	
Calcutta,	71	
M. Video,	20	
Natal,	30	5
Seymour,	30	
Soda Salts—		
Toronto,	6 cks.	
Sodium Bicarbonate—		
Alcoa Bay,	20 bgs.	
Antwerp,	20 kgs.	
Boston,	280 cks.	
Cairo,	100	43
Capetown,	45	
Christiania,	25	1
Copenhagen,	20	40
Genoa, 100 pkgs.	53	
Halifax,	25	
Hamburg,	35	20
Leghorn,	14	
Pt. Elizabeth,	20	
Sydney,	30	
Adelaide,	200	
Auckland,	40	
B. Ayres,	37	
Calcutta,	100	
Canterbury,	50	
Dunedin,	50	
Havana,	80	40
Hio,	200	
Manillas,	130	
Newcastle,	100	
Valencia,	180	40
Valparaiso,	50	
Vera Cruz,	85	
Wellington,	85	
Sodium Carbonate—		
Baltimore,	80 cks.	
Philadelphia,	56 brls.	
Sodium Chlorate—		
Boston,	50 kgs.	
Hamburg,	80	
New York,	60	
Vera Cruz,	20	
Rotterdam,	10	
Sodium Nitrate—		
New York,	2 cks.	
Sodium Silicate—		
Alicante,	34 brls.	
Barraguelia,	10 cks.	6
Madeira,	9	
Melbourne,	50	
New York,	10	
Oporto,	30	
Pirzus,	50	
Seville,	50	
Sulphur—		
Ghent,	6 t.	£27
San Juan,	1	6
Boston,	250	10 c.
Savannah,	12	1 q.
Rio de Janeiro,	4	18
Superphosphate—		
Genoa,	255 t.	£850
Nantes,	150	5 c.
Valencia,	50	2 q.
Gr. Canary,	20	375
Tallow—		
C. C. Castle,	1 ck.	
Caril,	5 cs.	
Yarnish—		
Talcahuano,	1 cs.	
Bombay,	7	
Pireus,	2	
Seville,	12 cks.	
Valparaiso,	14	
White Lead—		
Bahia,	50 kgs.	
Liban,	300	
Calcutta,	160	
Para,	14 cks.	
St. Thomas,	4	
Zinc White—		
Salmica		

GLASGOW.

Week ending February 2nd.

Acids—		
Rangoon,	45 t.	6½ c.
Bombay,	37	10
Ammonium Sulphate—		
Calcutta,	5 t.	£55
Bleaching Powder—		
Calcutta,	13 t.	19 c.
Boracic Acid—		
Rouen,	15½ c.	£33
Carbolic Oil—		
Trieste,	9 t.	17¾ c.
Caustic Soda—		
Philadelphia,	7 t.	8 c.
Chloroform—		
Japan,	600 lbs.	£42. 10s.
Coal Products—		
Aniline		
Calcutta,		£109
Aniline Dyes	2½ c.	33
Calcutta,	10½ c.	£140
Cresote Oil		
Bordeaux,	359½ t.	£540
Naphtha		
Rouen,	9 t.	13¾ c.
Pitch		
Oporto,	97 t.	11 c.
La Rochelle,	1,120	2
Gijon,	1,100	1,680
Bordeaux,	190	19
Tar		
Rangoon,		£206
Halifax,	37 t.	10 c.
N. York,	37½	80
Bombay,		26
Calcutta,	1,728	3
Tar Oil		
Rotterdam,	13 brls.	£97
Colour—		
Calcutta,	3 t.	£26. 15.
Indigo Extract		
N. York,	6 t.	1¾ c.
Linseed Oil—		
Alexandria,	3 t.	£65
Halifax,	8	13 c.
China,	1	4½
Colombo,	1	29
Magnesium Sulphate—		
Bombay,	6 t.	4 c.
Paint—		
Alexandria,	7 t.	13½ c.
Rangoon,	19	6½
N. York,	1	4½
Singapore,	10	6½
Calcutta,	16	180
Painters' Colours—		
Calcutta,		£114
Nantes,		37
Paraffin Wax—		
Alexandria,	2 t.	4 c.
Nantes,	2	9½
Japan,	52	17¾
Potassium Bichromate—		
Antwerp,	20 t.	6½ c.
Calcutta,	7	1
Rotterdam,	39 cks.	551
Rouen,	25 t.	14 c.
Japan,	5	199
Bombay,	3	114
Potassium Prussiate—		
Rouen,	10 t.	14½ c.
Potassium Sulphate—		
N. York,	19 t.	8½ c.
Salt Cake—		
Antwerp,	260 t.	£520
Soap—		
Alexandria,	2 t.	15 c.
Bombay,	2 t.	24
Colombo,	1½	25
Calcutta,	5	11
Soda Ash—		
Antwerp,	5 t.	£28
Sodium Bichromate—		
Bombay,	2 t.	6½ c.
Tallow—		
Colombo,	13¾ c.	£21
White Lead—		
Halifax,	10 t.	£100
Bombay,	3	43

HULL.

Week ending January 28th.

Alkali—		
Antwerp,	1 bl.	
Liban,	60 kgs.	

Ammonium Sulphate—

Bremen,	455 bls.
Dunkirk,	350
Ghent,	1,535

Bleaching Powder—

Dunkirk,	22 cks.
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Caustic Soda—

Fiume,	86 dms.
Liban,	66
Odessa,	35

Chemicals (otherwise undescribed)

Antwerp,	22 cs.	4 cks.
Barl,	10	5
Christiania,	1	24
Constantinople,	2 pks.	50
Flushing,		4
Gothenburg,	5 cs.	38 pks.
Ghent,	10 kgs.	
Hamburg,	40 cs.	19 cks.
Liban,	453 kgs.	130
Messina,		9
Odessa,		5
Rotterdam,	65 cs.	94
Trieste,		82

Cottonseed Oil—

Antwerp,	401 c.
Amsterdam,	100
Dunkirk,	122
Drontheim,	51
Fiume,	101
Gothenburg,	100
Hamburg,	884
Rotterdam,	3,027
Trieste,	2,101

Cresote—

Hamburg,	20 cks.
----------	---------

Dyestuffs (otherwise undescribed)

Christiania,	100 bls.
Liban,	1 cs.

Guano—

Dunkirk,	843 bls.
----------	----------

Linseed Oil—

Bergen,	111 c.
Christiania,	189
Constantinople,	40
Drontheim,	140
Hamburg,	40
Rotterdam,	42
Stavanger,	51

Mineral White—

Messina,	46 cks.
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Naphtha—

Copenhagen,	5 dms.
-------------	--------

Painters' Colours—

Antwerp,	149 kgs.	2 cs.
	34 cks.	25 dms.

Copenhagen,

	15 pkgs.
--	----------

Christiania,

	1 cs.
--	-------

Drontheim,

	2 cks.	32 kgs.
--	--------	---------

Flushing,

	1 cs.
--	-------

Gothenburg,

	1	13 cks.
--	---	---------

Hamburg,

	4
--	---

Odessa,

	69
--	----

Rouen,

	5
--	---

Rotterdam,

	1 kg.
--	-------

Trieste,

	1
--	---

Paraffin Wax—

Liban,	32 bls.
--------	---------

Pitch—

Antwerp,	150 t.
Dunkirk,	102

Size—

Flushing,	33 cks.
-----------	---------

Soda Crystals—

Antwerp,	4 bls.
Fiume,	60 bgs.

Tar—

Amsterdam,	79 cks.
Copenhagen,	7

Yarnish—

Antwerp,	4 dms.	3 cs.
Rouen,	1 ck.	2 cks

TYNE.

Week ending January 28th.

Alkali—		
Bergen,	2 t.	19 c.
Alum—		
Billab,	10 t.	12 c.
Ammonium Sulphate—		
Hamburg,	30 t.	9 c.
Genoa,	10	
Antimony—		
Hamburg,	2 t.	10 c.
Copenhagen,		6
Arsenic—		
Genoa,		14 c.

Barytes—

Danzig,	5 t.
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Bleaching Powder—

Antwerp,	80 t.	12 c.
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Hamburg,

	6
--	---

Danzig,

	53	16
--	----	----

Rotterdam,

	12	2
--	----	---

Aarhus,

	2	4
--	---	---

Gothenburg,

	20	4
--	----	---

Ghent,

	20	3
--	----	---

Bilbao,

	5	8
--	---	---

Moss,

	15	2
--	----	---

Drontheim,

	10	12
--	----	----

Genoa,

	16	16
--	----	----

Caustic Soda—

Antwerp,	6 t.	6 c.
Hamburg,	3	9
Gothenburg,	50	4
Genoa,	4	18

Guano—

Genoa,	39 c.	19 c.
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Litharge—

Ghent,		11 c.
--------	--	-------

Magnesia—

Antwerp,		4 c.
Hamburg,		5
Genoa,		4

Paint—

Antwerp,		11 c.
----------	--	-------

Potassium Bichromate—

Copenhagen,		8 c.
-------------	--	------

Soda—

Antwerp,	12 t.	9 c.
Rotterdam,	2	8
Drontheim,	32	8
Ghent,	5	7
Bergen,	41	11
Genoa,	72	11

Soda Ash—

Danzig,	20 t.	4 c.
Antwerp,	9	17
Gothenburg,	13	7
Ghent,	10	9
Drontheim,	3	12

Sodium Carbonate—

Christiania,	3 t.
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Sodium Silicate—

Bilbao,	11 t.	4 c.
---------	-------	------

Sodium Sulphate—

Gothenburg,	3 t.	4 c.
Moss,	260	6

Superphosphate—

Genoa,	350 t.
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Tallow—

Hamburg,	4 t.	1 c.
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White Lead—

Copenhagen,	1 t.	1 c.
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PRICES CURRENT.

WEDNESDAY, FEB. 22, 1894

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 11/-	
" Glacial			50/-	
Arsenic S.G., 2000°		0	14	6
Fluoric	per lb.	0	0	3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.		0	3	0
Nitric 80° Tw.	per lb.	0	0	1 1/4
Nitrous		0	0	1 1/4
Oxalic	nett	0	0	3 1/4
Phosphoric, 1750°		0	1	2 1/2
Picric		0	1	1
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)		5	10	0
" (Pyrites, 168°)		3	5	0
" " 150°		1	5	0
" " (free from arsenic, 145°)		1	6	0
Sulphurous (solution)		2	15	0
Tannic (pure)	per lb.	0	1	2
Tartaric		0	0	11 1/2
Arsenic, white powdered	nett per ton	13	10	0
Alum (loose lump)		5	5	0
Alumina Sulphate (pure)		5	0	0
Aluminium	per lb.	3s. 4d.	to	0 4 0
Ammonia, Anhydrous		0	1	1
" 880=28°	per lb.	0	0	2 1/2
" =24°		0	0	1 1/4
" Carbonate	nett	0	0	3 1/4
" Muriate	per ton	20	0	0
" " (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-	
" Nitrate	per ton	38	10	0
" Phosphate	per lb.	0	0	10 1/2
" Sulphate (grey) London	per ton	10	8	9
" " (grey) Hull		10	8	9
Aniline Oil (pure)	per lb.	0	0	7 1/4
Aniline Salt		0	0	6 1/4
Antimony	per ton	45	10	0
" (tartar emetic)	per lb.	0	1	0
" (golden sulphide)		0	0	10
Barium Chloride	per ton	7	10	0
" Carbonate (native)		3	10	0
" Sulphate (native levigated)		45/-	to 75/-	
Bleaching Powder, 35 %	nett	7	10	0
" Liquor, 7 %		3	10	0
Bisulphide of Carbon		11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk		17/6	to 35/-	
Coal Tar Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	8
Magenta		0	3	9
Coal Tar Products				
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	0
Benzol, 90 % nominal	per gallon	0	1	9
50/90		0	1	6
Carbolic Acid (crystallised 40°)	per lb.	0	0	7 1/4
" (crude 60°)	per gallon	0	2	6
Creosote (ordinary)		0	0	1 1/4
" (filtered for Lucigen light)		0	0	1 1/4
Crude Naphtha 30 % @ 120° C.		0	0	11
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston		1	8	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	2
Coke-oven Oils (crude)		0	1	1 1/4
Copper	per ton	45	15	0
" Sulphate		16	5	0
" Oxide (copper scales)		42	0	0
Glycerine (crude)		13	0	0
" (distilled S.G. 1250°)		43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
" Sulphide (antimony slag)		2	0	0
Lead (sheet) for cash		11	0	0
" Litharge Flake (ex ship)		13	10	0
" Acetate (white ")		25	15	0
" " (brown ")		17	10	0
" Carbonate (white lead) pure		20	0	0
" Nitrate		20	0	0
Lime, Acetate (brown)	per ton	6	3	6
" (grey)		10	15	2
Magnesium (ribbon and wire)	per oz.	0	2	7
" Chloride (ex ship)	per ton	2	7	6
" Carbonate	per cwt.	1	17	6
" Hydrate	per ton	17	0	0
" Sulphate (Epsom Salts)	per ton	2	19	0
Manganese, Sulphate		17	15	0
" Borate	per cwt.	2	12	6
" Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	2	0
Naphtha (Wood), Solvent		0	3	0
" Miscible, 60° O.P.		0	4	0
Oils:—				
Cotton-seed	per ton	25	10	0
Linseed		21	10	0
Lubricating, Scotch, 890°—895°		7	5	0
Petroleum, Russian	per gallon	0	0	4 1/2
" American		0	0	5 1/2
Potassium (metal)	per oz.	0	3	7
" Bichromate	nett per lb.	0	0	4 1/2
" Carbonate, 90 % (ex ship)	per ton	18	0	0
" Chlorate	per lb.	0	0	9 1/2
" Cyanide, 98 %		0	0	0
" Hydrate (Caustic Potash) 80/85 %	per ton	22	5	0
" " (Caustic Potash) 75/80 %		21	5	0
" " (Caustic Potash) 70/75 %		20	15	0
" Nitrate (refined)	per cwt.	1	2	6
" Permanganate	per cwt.	3	7	6
" Prussiate Yellow	per lb.	0	0	9 1/2
" Sulphate, 90 % (ex ship)	per ton	9	15	0
" Muriate, 80 % (do.)		8	0	0
Silver (metal)	per oz.	0	3	2 1/2
" Nitrate		0	2	10
Sodium (metal)	per lb.	0	3	4
" Carb. (refined Soda-ash) 48 %	nett per ton	6	2	6
" " (Caustic Soda-ash) 48 %		5	0	0
" " (Carb. Soda-ash) 48 %		5	2	6
" " (Carb. Soda-ash) 58 %		5	7	6
" " (Soda Crystals)		3	2	6
" Acetate (ex-ship)		17	15	0
" Arseniate, 45 %		11	15	0
" Chlorate	per lb.	0	0	10
" Borate (Borax)	net, per ton	29	0	0
" Bichromate	per lb.	0	0	3 1/2
" Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton		11	0	0
" " (74 % Caustic Soda)		10	10	0
" " (70 % Caustic Soda)		9	10	0
" " (60 % Caustic Soda)		8	10	0
" " (60 % Caustic Soda, cream) (f.o.b.)		8	5	0
" Bicarbonate		6	10	0
" Hyposulphite		7	10	0
" Manganate, 30 %		16	0	0
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0	9	6
" Nitrite, 98 %	per ton	30	0	0
" Phosphate		15	10	0
" Prussiate	per lb.	0	0	7 1/2
" Silicate (glass)	per ton	5	7	6
" " (liquid, 100° Tw.)		4	5	0
" Stannate, 40 %	per cwt.	3	5	0
" Sulphate (Salt-cake)	per ton	1	8	0
" " (Glauber's Salts)		1	15	0
" Sulphide		7	15	0
" Sulphite		6	12	6
Strontium Hydrate, 100 %		8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7 1/2
" Barium, 95 %		0	0	5
" Potassium		0	0	7 1/2
Sulphur (Flowers)	per ton	8	0	0
" (Roll Brimstone)		6	10	0
" Brimstone: Best Quality		4	5	0
Superphosphate of Lime (26 %)		2	7	6
Tallow		26	5	0
Tin (English Ingots)		95	10	0
" Crystals	per lb.	0	0	6 1/2
Zinc (Spelter)	per ton	17	5	0
" Chloride (solution, 96° Tw.)		5	15	0

THE CHEMICAL TRADE JOURNAL

AND
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Vol. XII.

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LATE ADVERTISEMENTS.

CAST IRON flat top STILL on sale; been little used and equal to new; capacity about three tons.—Apply R. Gaskell, 6, Bishopgate, Wigan.

TO CAPITALISTS.—Wanted, £25,000. to £30,000. on mortgage of an extensive FREEHOLD CEMENT and BRICK WORKS. Under the cement and brick earth are large quantities of silicate and ironstone. Liberal interest, and bonus by way of royalty, or per centage on gross receipts. The freehold estate cost £60,000., and upwards of £30,000. has been expended upon the property for buildings, kilns, plant, etc.—Address "Portland A," Chemical Trade Journal office.

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CURRENT TOPICS.

MORE RESTRICTIONS ON CHEMICAL WORKS.

WITH those who habitually take a pessimistical view of things, it is an accepted truth that "it never rains but it pours;" but though we are not prone to regard matters always in this light, the saying does in all verity seem to fittingly apply to chemical manufacturers just now.

What with Acts of Parliament (to the list of which the new Employers' Liability Bill has now been added), bye-laws and regulations, smoke prevention, river pollution, and such like, it would, we should think, take much less time to state what a manufacturer may do, than to mention all the things which he may not do. Seeing that the majority of those engaged in the chemical industries show their willingness to do all that can in reason be expected of them, and do on the whole fulfil the conditions laid upon them, it is only natural that anything in the way of further restriction should be looked upon with suspicion. They are, however, threatened with more regulations, the precise nature of which is not yet known.

There is a clause in the 8th Section of the Factory and Workshops Act, 1891, which reads as follows: "When the Secretary of State certifies that, in his opinion, any machinery, or process, or particular description of manual labour used in a factory or workshop (other than a domestic workshop) is dangerous or injurious to health, or dangerous to life or limb . . . the Chief Inspector may serve on the occupier of the factory or workshop a notice in writing, either proposing such special rules or requiring the adoption of such special measures as appear to the Chief Inspector to be reasonably practical, and to meet the necessities of the case." And the present Secretary of State has taken the opportunity to avail himself of the authority which this clause affords him to make certain orders affecting specified manufactures and trades. The question asked by Mr. Woods in the House of Commons recently, shows that the manufacture of explosives and the operations in chemical works are dangerous, or entail injurious manual labour, and are consequently subject to extraordinary rules.

To carry out the suggestion thrown out by Mr. Woods to institute a thorough inquiry into the question of the nature of the fumes emitted by explosives used in mining would be little else than a waste of time, and to discuss the matter at length would be about as much good as flogging a dead horse. The question has, we think, been satisfactorily disposed of, and we should like to be able to say as much for the special rules to which we have just referred. It is difficult to see how these rules can give relief to employers. They are much more likely to bring increased responsibility, and we fear there is another rod in pickle for manufacturers.

THE SALE OF POISONS.

The necessity for placing more effectual restrictions on the sale of poisons has been advocated for long enough, and, in fact, a great deal too long in one sense, for the importance of

the question demanded more prompt attention than it actually received. The statistics which are published annually upon the number of deaths resulting from poisoning show that legislation has certainly produced satisfactory results in this direction, while they indicate only too clearly the expediency of scheduling as poisons narcotics sold as proprietary medicines, an inclusion which has been made comparatively recently. From the report which accompanies the statistics it appears that close on twenty-five per cent. of the total number of accidental deaths by poison are attributed to narcotics in some form or other. The bearing of the law on questions where the definition of a poison is disputed directly affects the interests of the public, and a report of such a case will be found in our columns this week, to which we venture to draw attention, as the decision is an important one.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

THE last meeting of this Section was held on Friday, 3rd inst., at the Victoria Hotel, Manchester, Ivan Levinstein, Esq., presiding. There was a fairly good attendance. The chairman first of all drew attention to the work of the committee appointed by the Society to deal with the Amendment of the Patent Laws. It was thought that individual appeal would carry more weight with the Board of Trade than an united effort, and the following resolution was read: "That the Secretary be instructed to forward to the Board of Trade a copy of the resolution passed at the last meeting in favour of a preliminary examination of patents, and to invite the various sections of the Society to address themselves directly to the Board of Trade in support of the amendment of the laws; and to send to each Section a copy of the United States Patent Law regarding the preliminary examination of patents." The resolution was seconded by Mr. J. Carter Bell, and carried unanimously.

Dr. Carl Otto Weber then proceeded to read three short papers. The first touched upon "The danger attending the presence of ammonium nitrate in nitro-cellulose." He described an explosion which had occurred when he was preparing a small quantity of di-nitro-cellulose. In order to obviate washing out the last traces of acid, he had used a dilute solution of ammonium hydrate for the last washing. On drying the nitro-cellulose at about 70°C., a violent explosion occurred. He had observed on a previous occasion that a mixture of ammonium, nitrate and acetic acid, when evaporated, subsequently ignited with almost explosive violence, and he deduced from the experiments which he had made, that the presence of small quantities of ammonium nitrate in such bodies was a source of considerable danger. The second paper referred to the dyeing of woollen goods in copper vessels. He mentioned that the action of alkalies and acids in such vessels often affected the shades of the dyes in a prejudicial manner. To overcome this difficulty he instanced the use of strips of zinc on the Continent, which, with the copper, formed an electric couple, the zinc passing into solution instead of the copper. The third paper was on the oxidation of cotton in bleaching and cop dyeing which led to a somewhat chatty discussion between Dr. Schunk, Messrs. Terrey, Crippin, Levinstein, and Dr. Weber, during which the Chairman, referring to the former paper, pointed out that the presence of zinc salts might be as objectionable as salts of copper, and also that the hydrogen gas evolved might form an objectionable element in some cases. The discussion turning to the conveyance of corrosive liquids in dye and other works. Mr. Levinstein mentioned, for the benefit of the members, that he had overcome the difficulty formerly experienced in transporting nitric acid about his works by using the glass-lined tubes made by a firm at Barnsley (Messrs. Dan Rylands, Ltd.), the adoption of which had in his case been attended with highly satisfactory results. Dr. Schunk moved a vote of thanks to Dr. Weber for his papers, which was seconded by Mr. Crippin, after which the meeting terminated.

SCOTTISH SECTION.

The usual monthly meeting was held in Glasgow on the 7th inst., at 207, Bath-street; Mr. Charles A. Fawcitt, president of the section, in the chair. In regard to the agitation for reform in the statutory regulations concerning the flash-point of marketable mineral oils, the sub-committee put in a report, in which they submitted certain resolutions for approval. The resolutions were as follows:—(1) The legal flash-point (*i.e.*, 73 deg. Fahr.) for mineral burning oil is too low, and therefore under ordinary circumstances dangerous. (2) The Govern-

ment Abel test is perfectly satisfactory for determining the temperature at which inflammable vapours are evolved; (3) 100° Fahr. by this test should be the minimum legal standard. (4) The Government Abel test is not invariably employed to determine the flash-point, as is evidenced by the fact that burning oils flashing at from 73° to 86° Fahr. Abel test are constantly imported and sold, bearing labels of from 126° Fahr. to 150° Fahr., and thereby the public are misled. (5) All burning oil imported into this country should have the Abel test branded plainly on the cask. (6) Many fatal accidents have occurred from the use of this inflammable oil, and, as a measure of precaution, so-called safety lamps, constructed of metal, have been introduced. Unless the oil itself is safe, a new source of danger is introduced by the use of these safety lamps." Dr. G. G. Henderson considered that the conclusions of the sub-committee hit the mark. He moved approval, and that the matter be remitted back to the committee, with power to take whatever further steps they might deem necessary. Mr. G. G. Henderson, seconding, thought that the Chamber of Commerce of Edinburgh, Glasgow should if possible be roused to interest and co-operation. Approval of the resolution and amendment to remit the matter to the committee was then carried unanimously. This being disposed of, the time being, the chairman called upon Professor Henderson to read the scheduled paper "On the Action of Fused Caustic Potash on Gold and Silver." Dr. Henderson explained the late Professor Dittmar, in conjunction with Mr. D. Prentice, had been experimenting in this direction, but their investigations had not been completed at the time of the former's death. Subsequently, however, they had been resumed in his (Dr. Henderson's) laboratory, and he concluded, with results which were certainly interesting, though little was absolutely new had been evinced. One crucible of pure gold and another of pure silver were employed during the course of the experiments, and the paper, which Dr. Henderson did not read in detail, consisted largely of figure data concerning the action of caustic potash and caustic soda on these, under varying conditions. Hydrogen was used throughout, and never gas. While potash in nearly all experiments very slightly lessened the weight of the metals, and in the case of the gold crucible took a reddish tinge from it, caustic soda was powerless to affect either, at least in any appreciable degree. Effect on the gold was distinctly more marked when the fusing was done in air. At the conclusion of Dr. Henderson's summarising, Mr. Fawcitt, the chairman, said that this was a subject of considerable importance to the arts; for one thing, he would like to know the exact manner in which the caustic potash acted on the gold. Dr. Henderson said he would himself like very much to know the precise character of the action which went on; but so far he could only say that it was oxidation of some kind. In one set of experiments the metal showed a slight increase of weight, which it afterwards lost on washing, but what precisely the process of action was, had not been ascertained. A cordial vote of thanks brought the meeting to a close.

IMPORTS AND EXPORTS FOR JANUARY.

THE Board of Trade returns for the first month of 1892 show a shrinkage in value for both imports and exports of British and Irish produce, as compared with the first month of 1891. The exports of alkali to the U.S.A. were 19,600 tons.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1891.	1892.
Margarine	cwt.	105,776	129,600
Copper ore and regulus	tons	15,386	15,386
Hides—dry and wet	cwt.	70,383	57,400
Nitrate of soda	tons	2,631	1,700
Tallow and stearine ..	cwt.	85,118	139,800
Tin	"	42,291	30,000

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

		Quantities.	
		1891.	1892.
Alkali	cwt.	398,392	552,000
Cement	tons	25,626	22,000
Coal and coke	tons	1,992,364	2,124,000
Iron and steel	"	196,678	197,000
Chemical manures	"	26,369	25,000
Oils—seed	"	5,461	5,000
Salt	"	33,875	41,000
Copper—all kinds	cwt.	93,973	96,000

Legal Intelligence.

SALFORD HUNDRED QUARTER SESSIONS.

THE MERSEY AND IRWELL JOINT COMMITTEE v. THE BURY CORPORATION.

THE CASE FOR THE RESPONDENTS.

(Continued from page 99.)

Mr. Sutton said he should tender evidence, and he should press it; and if necessary no doubt they would give him the benefit of it. After the constitution of the Joint Committee they applied to Parliament and got carried the 1892 Act, under which that offence was committed—"An Act to make more effectual provision for prevention of the pollution of the rivers Mersey and Irwell and their tributaries." The preamble was of importance:—

"Whereas by Order of the Local Government Board dated the 8th day of May, 1891, made under the Local Government Act, 1888, and confirmed by Parliament, a Joint Committee consisting of representatives of the Counties of Lancaster and Chester and of the County Boroughs of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, and Stockport, has been constituted and incorporated by the name of the Joint Committee of the rivers Mersey and Irwell (hereinafter referred to as 'the Joint Committee'):

And whereas by the said Order power is conferred on the Joint Committee to enforce the provisions of the Rivers Pollution Prevention Act, 1876 (subject to the restrictions in that Act contained) in relation to specified parts of the rivers Mersey and Irwell and the tributaries thereof:

And whereas the restrictions contained in the said Act are such as to preclude effective action by the Joint Committee for the improvement of the condition of the said parts of the rivers Mersey and Irwell and their tributaries:

And whereas the polluted and filthy condition of the said parts of the rivers Mersey and Irwell and their tributaries urgently requires improvement, and with that view it is desirable and expedient to confer such powers on the Joint Committee and to make such provisions as are in this Act mentioned."

The streams under the jurisdiction of the Joint Committee included specifically that part of the rivers which flowed through the borough of Bury. Therefore that was a local Act dealing specifically with the part of the Mersey and Irwell in the borough of Bury; and as it specially forbade any person to cause or permit any sewage matter to fall or flow in that part of the river it was clearly and absolutely inconsistent with section 102 of the old Act of 1846. It necessarily implied that, because the two could not stand together. That Act of Parliament was under the general Act.

His Honour: Special?

Mr. Sutton said it was a special Act. What was the principle that applied? Not where they had a subsequent general Act and a prior local Act, but where they had a prior local Act and a subsequent local Act, both dealing with the rivers Mersey and Irwell and those parts of them which flowed through the borough of Bury. Special Acts did not abrogate general Acts, but the latter Act of Parliament abrogated and did away with the prior Act. That was the principle, and the principle only which was held to apply as between two local Acts. There was only one other section to which he would call the attention of the court, and that was section 16, a saving clause:—

"Nothing in this Act shall apply to any tidal waters which have not been determined by the Local Government Board to be a stream in accordance with section 20 of the Rivers Pollution Prevention Act, 1876."

That was a most pregnant clause, because where they had one thing expressly excepted everything else was included. Here they had tidal waters determined not to be a stream. The word "stream" by section 14 of the Mersey and Irwell Act, 1892, was defined to mean "canalised streams, brooks, and watercourses;" and this term of course included the Mersey and Irwell and their tributaries. Therefore all waters in the watershed of the Mersey and Irwell except tidal waters were dealt with by the 1892 Act. His learned friend (Mr. Gully) was always most clear, and he should listen with some interest to see how it was possible to contend that the local Act of 1892 did not repeal the local Act of 1846. A great number—at least several large sewers had been made by the corporation of Bury since 1885, and they had made some in that part of the borough which formed no part of the borough in 1846. They had under the Public Health Act made orders upon private persons to couple up their drains, coupled up the drains of private dwelling-houses with their sewers, and themselves caused sewage to be carried through the sewers into the Roach and Irwell. They had, therefore, in the words of the section, "caused sewage matter to be carried into the river;" but they had done nothing to remedy this. Under the Act of 1885, they borrowed £11,000, and

invested it in land for the purposes of filtration; they were empowered in addition to, and did borrow £16,000, as recited under that Act; and yet they had refused to make, as they ought to have done an intercepting sewer. Could it be doubted that they had caused and suffered sewage matter to be carried into the Roach and Irwell? Mr. Cartwright, the borough surveyor, had been subpoenaed to produce the plans of the sewage system of Bury, and he hoped they would be brought into court; for that evidence alone would satisfy the court that Bury had grievously infringed the Act, and were not even within the provisions of section 102 of the Act of 1846, because they had not absolute power under that section to pour sewage into the Irwell and Roach.

His Honour: What power do you say they have?

Mr. Sutton: They have power to do it so as not to be a nuisance or annoyance to the neighbourhood.

Mr. Gully: I do not admit that construction.

His Honour: Does it refer to passing through the sewers as well?

Mr. Sutton said it referred to both. It would be incredible that even in 1846, when sanitary matters had not the prominence they had now, the legislature would grant any authority or person power to throw matter into the river so as to create a nuisance and be an annoyance to a neighbourhood. Even under a local Act a neighbourhood could not be annoyed. He should call evidence to show that a nuisance was caused.

Mr. Gully said he should object to that, because the corporation were not charged under the 1846 Act with throwing sewage into the river under the conditions named in that Act. They were charged simply with allowing liquid sewage to go in, and neither at the court below nor there were they—

His Honour: We shall see the summons upon which the magistrates adjudicated?

Mr. Sutton: Oh, yes.

Mr. Gully said they were charged under the 1892 Act with allowing sewage to run into the Irwell and Roach. If it was an offence to let it flow in contrary to the Act of 1892, then they were guilty; but they said that it was not an offence because they were protected by special legislation.

His Honour: Authorised. But it brings us back to the old point: Is the Act of 1846 repealed?

Mr. Gully: That is the only point.

Mr. Sutton: That is not the only point, because, though they say in their defence that they are entitled to do it under the Act of 1846, then we are entitled to reply, "No; because the Act of 1846 says you must not do it so as to cause a nuisance to the neighbourhood."

His Honour: Was there any evidence in the court below of a nuisance?

Mr. Sutton: Oh, yes.

Dr. Pankhurst: There was no evidence that there was a nuisance.

Mr. Sutton: I beg your pardon.

Dr. Pankhurst: I challenge my friend.

Mr. Sutton: Dr. Pankhurst, with that discretion which he has always exercised, kept this point about the local Act until the very last day.

His Honour: How long did it last?

Mr. Sutton: Two days. (Laughter in which the Bench joined.) Dr. Pankhurst took a day to make his speech, but he carefully abstained from giving any inkling of what his defence was until he came to reply after my mouth was closed.

His Honour: That was skill. (Laughter.)

Mr. Gully: The case would have lasted three days if my friend (Mr. Sutton) had had a reply. (Laughter.)

Mr. Sutton: If the evidence were not given in the court below, it could be given here. We desire the facts, and without the facts it is impossible to say what the meaning of this Act of Parliament is.

His Honour (perusing the summonses) said that one of them was for causing and the other for permitting liquid sewage to flow into the Irwell and Roach contrary to the 1892 Act.

Mr. Sutton said that was so. He urged that the court ought not to deal with exceptions and that, if they did, evidence ought to be taken on the point. The appellants admitted the offence.

Mr. Gully: We did not admit the offence. What we admitted was that we allowed the sewage to flow into the river.

Mr. Sutton said that in the court below he asked whether the sewage was deleterious to the health of the district; and the answer of Dr. Sargeant was that it was very injurious to the inhabitants and passers-by, and that in fact he considered it was dangerous to himself.

Mr. Gully: That was a private nuisance.

Dr. Pankhurst: He admitted that he did not give the requisite evidence because he did not know all the points that were to be raised.

Mr. Sutton said that Dr. Sargeant's answer was sufficient to prove a nuisance. The Act of 1846 applied only to the Borough of Bury as its limits then existed. The appellants had made sewers outside those limits, and the Act did not apply to them.

His Honour said the appellants were summoned for permitting and causing liquid sewage to flow into the river. He did not know that

there was anything in the point raised about the health of the inhabitants or passers-by.

Mr. Sutton: My friend says the appellants are entitled to do what they have done.

His Honour: He will have to justify it.

Mr. Sutton: And then I can show that he has not brought himself within the justification.

Mr. Gully urged that the 1846 Act applied to the extended borough as well as to the borough as it existed in that year.

Mr. Sutton said he should proceed to call evidence.

Mr. Gully said there was an important point of law involved—one which affected the interests of the whole community of Bury, and meant a large expenditure if the respondents were right. On the other hand, the question was important from the respondents' point of view. He would ask the court, under the circumstances, to grant a case at that point instead of having the matter fought out at considerable length and the court above being then asked to do what eventually it would be asked to do.

His Honour: We must find one way or the other, must not we?

Mr. Gully: Not if there is a case stated.

His Honour: Do you consent to that, Mr. Sutton?

Mr. Sutton: No; I want the opinion of this Bench.

His Honour: Very well, then.

Dr. Edward Sargeant, examined by Mr. McKeand, said that he was medical officer of health to the Lancashire County Council. He had a personal knowledge of Bury and the surrounding districts, and knew the rivers Roach and Irwell. He had had occasion from time to time to notice the condition of the rivers.

Mr. Gully said the only question they ought to go into was the ground of appeal—that the defendants had a right under the Act of 1846 to do what they had to do. They admitted they had done the acts alleged in the summons, but said there was no offence, because they had special powers under the 1846 Act. The object they had in view was the narrowing of the limits for the court above.

His Honour said the appellants justified their action under the 102nd section of the Bury Improvement Act, and it appeared to him that they were bound to hear the evidence, for the respondents might show that there was a nuisance under the Act. The Bench thought they had no power to exclude the evidence.

Mr. Gully said that section 102 enabled the appellants to pour sewage into the Irwell and Roach. He asked the court to say that the words in the section in regard to a nuisance did not apply to the first part of the section.

His Honour said that was difficult to construe; but the Bench thought the words applied both to the emptying of sewage into a public stream or watercourse or to its conveyance to a convenient site: "And that the same shall in no case become a public nuisance." It was not free from doubt, but the Bench thought the best judgment they could bring to bear upon it was that, although there might also be a good replication by the other side, if they attempted to do it they caused a public nuisance.

Mr. Gully said that if the court thought that, there was an end of it. Otherwise he would have argued the point, because it did seem to him that the words applied to the conveying of the sewage to another neighbourhood for the purpose of dealing with it as manure, and not to the pouring of the sewage into the rivers in 1846.

His Honour: The rivers were main sewers up to 1846.

Mr. Gully said that this left to private individuals the right of action, by indictment or summons, if a nuisance was caused. Sewage was turned into the rivers up to 1846 by almost every town in the kingdom which had a river near it, and there was nothing remarkable in saying that Bury might do it. The words "a nuisance" were in the case of the sewage being removed to another neighbourhood, and were not intended to refer to a nuisance in the neighbourhood of the river itself.

His Honour: It is a difficult section to construe.

Mr. Gully said the sections would not be construed according to the ideas of 1892, but according to the words in the Act of 1846, which he submitted meant a nuisance in the neighbourhood to which the sewage was removed. But assuming the word "nuisance" did apply, the appellants were not charged with a nuisance. They were entitled under the 1846 Act to turn the sewage into the river, and if in doing so they committed a nuisance they could not be indicted for it. But the Act did not say they could not pour liquid sewage into the river at all, or that the Act of 1846 was abrogated by that of 1892. The latter Act said that no liquid sewage should be turned into the river, whether a nuisance were committed or no. There was another remedy for the other offence of pouring sewage in so as to constitute a nuisance under the 1846 Act. They were simply charged under the summonses before the magistrates with pouring sewage into the river, without regard to whether there was a nuisance or not. They had not come to court to deal with a nuisance; that was not in issue.

His Honour: What do you say to that, Mr. Sutton? You do not summon them for a nuisance.

Mr. Sutton: No, because we do not know what their defence is going to be.

His Honour: Oh, their defence is what it was below—that they have power to throw in this sewage.

Mr. Sutton: I think they hardly went on that. That was not started until the last minute. It was an inordinate length.

Dr. Pankhurst: It was not an inordinate length, because I did not call evidence.

Mr. Sutton: No, but you cross-examined my witnesses for hours. (Laughter.)

His Honour said that the Bench would admit the evidence, and would then say what would be done afterwards. They thought they must take the evidence.

Dr. Sargeant, who had remained in the witness box, was then proceeding to put in the plans of the sewer outlets of the appellants, when

Mr. Gully said they did not want to be bothered with plans. The witness was brought forward to show that the sewage was in such a condition as to be a nuisance.

Mr. Sutton: And an annoyance to the neighbourhood.

Dr. Sargeant: I wish to say it is a greater nuisance after it has been in the river a short time.

Mr. Gully said Mr. Sutton could make that as short as he liked: it was not a point he had come to contradict. The appellants said in fact that the river left Bury in a better condition than it reached it. (Laughter.) That was because the river was in so foul a condition that what Bury put in, although it might not be so pure, actually improved the average.

His Honour: The Town Clerk of Manchester always said the river left Manchester purer than it entered. (Laughter.)

Mr. Gully: A very proper argument for a Town Clerk to use. (Laughter.)

Dr. Sargeant then put in the plan produced at Bury, showing the outlets from the Bury sewers into the Roach and Irwell, and said that he had seen sewage flowing into both rivers. He had taken samples and examined them. The smell given off during the decomposition of the sewage was injurious to those persons who lived near or passed by the rivers. Barnbrook was very highly polluted. There were houses near the brook, and the smell must be annoying. The condition of the Roach was a danger, and injurious to health. Cross examined: He did not say that the health of Bury generally was injured by the sewage, or that the death rate was affected. The few houses—about 26—in the vicinity of the Roach and the Barnbrook would not affect the death rate. There would be about a score of houses at Pimhole, near Barnbrook. The brook would tend to injure health, though he would not go so far as to say definitely that it would injure it. He put it only as an annoyance, and not as a nuisance.

Mr. Tatton, examined by Mr. Sutton, said he was chief inspector for the Mersey and Irwell watershed. The population of Bury was about 57,000. Taking the average amount of water consumed per head of the population, the amount of sewage poured into the Irwell and Roach would be about—

Mr. Gully: How can any witness answer a question like that, supposing there is hardly a water closet in the place and there are mostly privies, as is the case in Bury?

Witness, in continued examination, said the samples taken from the various sewers discharged into the Irwell and Roach in Bury contained crude specimens of household sewage. The amount of water consumed per head of the population per day was 16 gallons. This was a low estimate. He judged that there were about 900,000 gallons discharged into the river daily. The sewage had visible and palpable effects upon the condition of the river. The water was distinctly worse below the sewer outlets than above, and in summer smelled very badly. The discolouration of the river could be traced a considerable distance down.

His Honour: Does it amount to an annoyance or a nuisance?

Witness: I think that certain parts distinctly do. The part leading into the Barnbrook is a distinct nuisance to the neighbourhood, and would certainly be felt by passers-by. The sewage discharge from some of the outlets is of a very foul character.

Cross-examined by Mr. Gully: He believed that in Bury there were privies, and not waterclosets, generally.

What do you mean by the word "nuisance"?—I should say it is unpleasant to live near it.

Disagreeable to look at and smell?—Yes.

Do you know that disagreeable smells are not necessarily injurious to health?—Yes.

Thomas Nuttall, civil engineer and surveyor, who had practised in Bury since 1864, said he was well acquainted with the rivers about Bury. He had seen sewage matter going into the river. There were smells from these sewage emissions, and it had been an annoyance and a nuisance to him. The No. 1 outfall was made about 1851-2, No. 4 about 1858 or 1859, another outfall emptying into the river behind Hinds, draining Elton, was made in 1862. Nos. 2 and 3 outfalls were

impression that they had brought under the notice of the committee something that had never occurred to the committee before. The matter was one that had engaged the attention of the committee for a considerable number of months, but it was a subject that was full of difficulty, and they had not yet been able to decide as to the course they should pursue.

Mr. Brooks, Chairman of the Committee, said the committee fully recognised the importance of the deputation, and were willing to give the memorial every consideration. At the same time he must say that he rather regarded the statements that had been made that morning as of the nature of special pleading. The question was undoubtedly one of £. s. d. In addition to the side of the question they had heard that morning, there was the side of the people who used gas for illuminating purposes only, and he did not consider it very reasonable to argue that gas should be sold to one consumer at 2s. and to another at 2s. 6d. Twelve months ago the committee submitted a proposal for the reduction of the price all round, to the extent of 3d. per 1,000 cubic feet, and this they would have regarded as more equitable to the whole community, but the Council declined to comply with their recommendation. That would have been a much bolder step than merely to reduce the price to one section of the community. Without entering further into the matter he could assure the deputation that their views would be carefully considered.

Mr. Philips, on behalf of the deputation, thanked the committee for their courtesy. He added that, of course, they did not come there with the ridiculous notion that they were bringing an entirely new matter before the committee. All they desired was to state certain facts, and to give expression to the views of a section of the community. The deputation then withdrew.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the city of London for the week ending January 28th was faultless. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles)	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'40	12'79	0'22	Nil.
South Metropolitan Gas Co.	6	16'45	10'66	0'85	Nil.
Commercial Gas Co.	2	16'4	8'5	0'0	Nil.

The supply during the week ending February 4th was practically faultless, there being one deficiency in illuminating, and that against the South Metropolitan gas, which tested 15'9 candles instead of 16'0. The results calculated as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles)	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'36	12'67	0'21	Nil.
South Metropolitan Gas Co.	6	16'33	11'65	0'5	Nil.
Commercial Gas Co.	2	16'45	7'7	0'05	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

TIPS FOR TRADERS.

CHEMICAL PRODUCTS and raw materials for the manufacture of porcelain and glass are included in the list of products which are to be exempt from customs duty under the Bill recently passed by the Bulgarian Government for encouraging industry in that country, by ceasing to tax industrial establishments having an invested capital of 2,000 francs, and abolishing the duties on certain raw materials not produced in the country itself.

WOOD PULP is now not only used for paper making, but is manufactured in Canada in considerable quantities for use in the manufacture of gunpowder, building materials, furniture, tubs, and barrels.

CAOUTCHOUC, considerable quantities of which are derived from Assam, is becoming scarcer in that district, owing to reckless logging, and also to the depredations of illicit tappers. A scheme for protection of the forests is under consideration.

MINERAL DEPOSITS of considerable interest have been investigated recently in New Brunswick. Sulphides of lead, copper, and iron dominate. An assay of a three-pound sample, made by a competent chemist, gave the following results:—0'7 dwts. of gold per ton ounces of silver, and 12'63 per cent. of lead. Another sample contained of gold 0'87 dwts. per ton and 18'3 ounces of silver.

TARIFF CHANGES.

There are from time to time many alterations in the customs regulations abroad, which it is as well for those trading in chemicals, oils, and raw materials to be acquainted with. The following are of the recent changes of interest to the foregoing:—

HEAVY OIL OF WINE obtained by distilling alcohol with sulphuric acid, and not technically known as ether, is subject to a duty of 10 per cent. *ad valorem* under the present Customs Tariff of the United Kingdom.

MATCHES under the Budget Law of Brazil for 1893 are subject to a treble duty.

CHEMICAL PRODUCTS and dyeing materials, however, among articles for industrial use, enjoy a reduction in the import duty to 5 per cent.

SILVER ORE will, according to Her Majesty's Minister at Lima, be exported from Peru duty free. The measure is intended to assist the mining industry, which is suffering from the low price of silver.

POSTAL CHANGES.

A parcels post service is now in operation with Mashonaland, the rate of postage being two shillings and twopence per pound.

The issue of money orders for the Argentine Republic has been stopped, the Post Office having been unable to carry out the arrangements necessary for the extension of the money order system to that country.

Reports of Companies.

DIVIDENDS.

THE DIRECTORS OF THE PATENT VICTORIA STONE COMPANY (Limited) recommend a dividend for the past half-year of 5 per cent. free of income-tax, making a total for the year 1892 of 10 per cent.

THE SALT UNION has declared a dividend on the preference shares at the rate of 7 per cent. and on the ordinary shares at the rate of 5 per cent. carrying forward £2,500.

THE DIRECTORS OF HENRY BESSEMER AND CO. (Limited) announce a dividend for the past year of 17½ per cent. They give an unfavourable opinion as to trade for the current year, stating that at present is very scarce and prices low.

THE PHOSPHO-GUANO CO. (Limited) will hold its seven Annual Meeting of shareholders at the City Terminus Hotel, City Street, E.C., on Thursday, 23rd prox. to receive the report of the directors and to transact the ordinary meeting of the company.

THE DIRECTORS OF MESSRS. ARTHUR GUINNESS, SON & CO. (Limited) have declared an interim dividend, payable on the 1st of March next, at the rate of 12 per cent. per annum, on the ordinary stock for the six months ended December 31st. The company will also pay, at the same time, a dividend, less income-tax, at the rate of 6 per cent. per annum on their preference stock for the same period.

PRICE'S PATENT CANDLE COMPANY (Limited) state that the dividend for 1892 was about £65,000., to which must be added the dividend brought from 1891, making together about £72,100. After deducting the dividend paid in September last, appropriating £12,500. for depreciation, and placing £5,000. to a reserve fund, there will remain £64,600., out of which the directors recommend a dividend of 10 per share, making a distribution of £1. 5s. per £16. share for the year, leaving about £7,700. to be carried forward.

THE REPORT OF THE DIRECTORS OF THE MAXIM NORDENFELD GUNS AND AMMUNITION COMPANY (Limited) states that, on account of the diminution in the orders received and in consequence of the factories having been barely half employed, a loss of £22,900.

been incurred in the operations of the year, thus reducing the amount at the credit of undivided profits to £7,499. As anticipated the removal of the company's Crayford and Silvertown machinery to Erith has resulted in a saving, but the cost of such moving has this year in good part absorbed the benefit derived therefrom. The directors have also effected considerable reductions in the fixed expenses of the company, the full advantages of which will be experienced during the ensuing year. The Placencia de las Armas Company (Limited) has made a profit of £2,782., which has been credited to this company in part discharge of the interest payable on advances made.

Messrs. Brunner, Mond, and Co. (Limited), alkali manufacturers, Winnington, Northwich, have just published their half-yearly report, which shows a balance to the credit of profit and loss account on the working of the half year ended 31st December last of £267,093., which, with the amount of £76,518. brought forward from the previous half year, makes a total of £343,611. It is proposed to deal with the balance as follows:—Dividend on the preference capital at 7 per cent. per annum, £15,356.; dividend on the ordinary capital at 50 per cent. per annum, £152,500.; amount to be written off patents account, £2,500.; balance to be carried forward, £173,255. The reserve fund is so large that the Directors do not at present propose to increase it. At the forthcoming annual meeting of shareholders a resolution will be submitted that the nominal capital of the Company shall be increased to £2,000,000. by the creation of new shares.

Parliamentary Jottings.

UNHEALTHY EMPLOYMENTS.

In the House of Commons last week Mr. Woods asked the Secretary of State for the Home Department, with reference to the order issued by him on the 24th December, 1892, under section 8 of the Factory Act Amendment Act, 1892, certifying that the following processes were dangerous to health—viz., the manufacture of earthenware, the manufacture of explosives in which di-nitro-benzole is used (including ammonite, roborite, and bellite), *chemical works*, and quarries, whether he was aware that these explosives were freely used in the coal mines in Lancashire, in some cases where the ventilation was insufficient to carry away the noxious and poisonous fumes; that in the opinion of the Lancashire Miners' Federation, after a lengthy investigation into the subject by experts, men were in many cases being slowly poisoned by breathing the emitted gases; and, if he would cause an investigation into the whole subject with a view of giving the miners adequate protection against what they consider a deadly poison.

Mr. Asquith: It has been brought to my notice that the use of roborite and explosives of a similar character is objected to by the Lancashire miners on the grounds stated in the question. The matter has been frequently considered, but I have directed further inquiries to be made, and I am not yet in a position to say whether a case has been made out for such an investigation as my hon. friend desires.

NEW BILLS.

The following Bills of interest to our readers were introduced by the gentlemen respectively named, and read for the first time:—

Mr. STEPHENS,—To enable local authorities to deal separately with the sewage and drainage of their districts.

Mr. QUILTER,—For better securing the purity of beer.

Mr. BROOKFIELD,—Bill to regulate and restrict the use of hop substitutes.

Selected Correspondence.

RIVER POLLUTION.

(To the Editor of the *Manchester Guardian*.)

SIR,—The report of the last meeting of the Joint Rivers Committee for Lancashire and Cheshire, held on February 6th, is interesting reading. That Committee and the Corporation of Salford have at last got to open war, and such a war! It would be idle to deny that, in its usual bungling fashion, the Salford Corporation has done something for the cause of river purification. It was at least first in the field, and had it been equal to its opportunities it might have erected to itself one of the greatest monuments of sanitary enterprise of the century. I fear it has only succeeded in showing its own futility and incapacity, and the record of Monday's proceedings will certainly not enhance its reputation. At the previous meeting of the Committee Alderman Walsley distinctly stated that Salford only wanted powers equal to those possessed by the Joint Committee "within the borough of

Salford." When the 29th clause of the Salford Omnibus Bill dealing with the subject appeared it was found to embody powers co-extensive with those of the Joint Committee throughout the entire watershed. I am informed that the minutes of the River Irwell Conservancy Committee plainly show that the clause was only to seek powers within the borough of Salford, and how a clause so widely at variance with the decision and instructions of that Committee came to be drawn up is one of those points in Salford municipal history which should be made clear at the earliest opportunity. The Joint Committee under the circumstances adopted the only course open to an assembly of honourable men in deciding to oppose the clause in Parliament, and in refusing to be in any way associated with a Corporation which adopts such exceedingly dubious methods in the conduct of its business.—Yours, &c.,
CITIZEN.

Correspondence.

* * * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

W. S.—We thank you for your letter, and are sorry you will not be able to do anything in the matter.

J. H.—We have acted on your suggestion.

F. BROS.—They will be sent in future.

W. S. S.—We thank you for co-operation in the matter.

C. H.—We trust the information gave all you require.

STEAM.—There are several. Indiarubber and asbestos combined constitutes a good one.

MANURE.—Chiefly phosphate of calcium. The other compounds you mention are virtually useless, and often their presence is objectionable.

INQUIRER.—(1) They are less complicated. (2) Of course, the principle is the same. (3) It depends on the initial velocity of the air current.

NOTICES.

LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

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FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Trade Notes.

PREACHING VERSUS PRACTICE.—That well-known authority on the trade of Germany, *Kuhlows Review*, has been in the habit of permanently displaying the following notice for the benefit of its contemporaries:—"It is particularly requested that our contemporaries will *duly acknowledge* Trade reports and other original matter taken from our columns." Not long since our contemporary the *American Manufacturer* pointed out that there was nothing wrong in this request, only it was comparatively amusing for it to appear at the head of a two-column article on the "Volatilization of Quartz" taken direct

from that paper without any acknowledgment whatever. There are, however, three degrees of comparison, this is the positive degree. Bearing in mind the afore-mentioned request it is still more amusing to note that considerably *more than a third* of the total literary contents of *Kuhlow's* issue of February 8th, 1893, consisted of original articles taken from the CHEMICAL TRADE JOURNAL without the slightest acknowledgment and without alteration; except where reference was made to certain issues of our *Journal* in which articles relative to the subject being treated on, had previously appeared, when the references were expunged, leaving the words "which appeared in the pages of this *Journal*," thereby making it appear as if "this *Journal*" was *Kuhlow's*, though we have cause to know better. This is the comparative degree. The amusing element, however, reached the superlative degree when we looked for the above-mentioned instructions to contemporaries and found that they were *non est*.

COAL IN CANADA.—An extensive coalfield has been discovered in New Brunswick, 250 miles nearer to Montreal than the Nova Scotia mines, which have passed under the control of an American syndicate. The coal is of a good quality, and will make the Government railways independent of the Nova Scotian mines.

MORE PARAFFIN LAMP ACCIDENTS.—Within a week no less than four deaths have occurred through the upsetting or explosion of lamps burning mineral oil, presumably of a low flashing point. At Stockport a married woman and her child, at Wandsworth, near London, another woman, and at Gray's Inn-road, London, a man were all so severely burnt that they have since succumbed to their injuries.

THE PRELIMINARY EXAMINATION OF PATENTS.—Some correspondence has passed between Mr. Leng, M.P., and Mr. Mundella, President of the Board of Trade, in which Mr. Leng points out that in this country when an inventor applies for a patent, although there may be a score of patents already covering what he proposes, the Patent Office gives him no information or warning that such is the case. In the United States, Germany and other European countries, on the other hand, an official examination as to novelty takes place, and Mr. Leng suggests that Britain should not lag behind foreign countries and its own colonies in a matter in which the interests of inventors, scientists, and manufacturers are so much concerned, and that an instruction from the Board of Trade to the Patent Office would affect what is required. Mr. Mundella, in reply states that Mr. Leng's proposal, if adopted, would involve a radical change in the principle and policy of the patent laws. While the suggestion will receive careful consideration, there is little prospect of any legislation of this nature being undertaken during the present Session.

THE WAY TO ADVERTISE.—To have the right thing in the right place is the secret of success in advertising. Apart from wheezes which merely catch the eye, such as painting advertisements on the sides of cows feeding near railways, which has been done in Connecticut, there are the customary and more legitimate mediums—trade journals. Circularising, which, in some quarters is made so much of, is not the best way of advertising, and this statement is substantiated by the following remarks made recently by one of Her Majesty's British Consuls in his trade report. "Foreign traders are positively inundated with circulars and price lists, while parcels of similar things are loaded upon the consuls. Most of these go straight into the waste-paper basket." This is hardly the right place from the advertiser's point of view. Continuing, the report states: "*Trade papers, on the other hand, are read with avidity, and the advertisements they contain receive a certain amount of attention.*" The moral is easy to see, while what is the "right place" in which to give prominence to the "right thing" is equally patent. This may possibly reveal to those who protest that advertising does not pay, the reason why their experience has been different from the vast majority of those who have fostered their business by the judicious use of printers' ink.

DEATHS FROM POISONING.—Deaths by poisoning are largely on the increase. There were 684 in 1889, while in 1891, for which the record is now complete, there were 876, an increase of 242. One hundred and thirty-two of these deaths were ascribed to "lead." It is very desirable that a Parliamentary return should give further particulars of the nature of these cases. The largest proportion of deaths took place in Lancashire, in the West Riding of Yorkshire, in Durham, and in South Wales. It would be important to know how many of them were deaths of persons employed in lead works, pottery works, and other branches of manufacture, and how many of them were due to the poisoning of drinking water by the distribution of soft water through leaden pipes. There were 62 deaths from chloroform and 31 from carbolic acid. It was long since recommended to the Privy Council that substances such as carbolic acid and the mineral acids, which are together responsible for 48 deaths by accident alone, should be included in the list of statutory poisons. Arsenic and oxalic acid are responsible for only ten deaths, from which it may be concluded that the requirement that they should be sold only with the poison label has been of value. No fewer than 114 deaths were due to narcotic poisoning, by opium, laudanum, morphine, chlorodyne, sooth-

ing syrups, etc., "nearly a fourth of the whole number of accidental deaths by poison being caused by some form of narcotic." Until quite recently all narcotics, even if belonging to the class of scheduled poisons, were sold without a poison label as secret or proprietary medicines.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol is still very flat, 90's ranging from 1s. 8d. to 1s. 9d., and 50'90's from 1s. 6d. to 1s. 7d. Solvent naphtha continues its old price, and the same may be said of crude carbolic. Anthracene may be quoted 1s. 2d. for A and 10d. for B, while pitch is selling at 26s. on west coast, and 27s. on east coast ports.

The sulphate of ammonia market is very firm indeed, considerable business being done at all ports. Beckton is now quoted £10. 10s., and London outside makes £10. 10s., with increasing firmness. At Hull and Leith prices range from £10. 10s. to £10. 11s. 3d., the Liverpool market being especially strong at £10. 11s. 3d. A stronger market is expected from now to the end of the month.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is a little more movement in some of the products, especially in bleaching powder, for which the price has been advanced for export, 10s. per ton. For home trade price still remains at £7. 10s. net, maker's works, but some advance on this quotation may be looked for. For chlorate of potash and soda the demand is yet active, and only resale parcels are to be obtained for near delivery, nearest quotations being 9d. to 10d. for either. Soda ash continues somewhat quiet and there is no change in the quotations, either of Leblanc or Solvay makes. Caustic soda is moving slowly and prices are unchanged, viz.: F.o.b. Tyne, 77%, £11; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., ten ton lots and upwards. Soda crystals flat at £2. 13s. per ton, in bags, f.o.r. works. Recovered sulphur, £4. 5s. per ton. Vitriol and muriatic acid are meeting with an ordinary demand, and there is no change in values. Sulphate of copper keeps an even course at £16. 5s. to £16. 10s. f.o.b. Aniline oil and salt are without fluctuation, but demand is small, and the tendency is in the direction of lower prices. White powdered arsenic in good request, and price firm at £13. 10s. In potash, caustic, and carbonate, there is a fairly even balance between supply and demand, and prices remain firm. Brown acetate of lime is slightly easier on the spot at £6. White sugar of lead steady at £25. 15s. c.i.f. Carbolic acid crystals are without change. The demand for liquid carbolic acid is still brisk, and prices are well maintained for all grades. Reports of bad trade are pretty general, and especially affect all chemicals used in the textile trades.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrants closed at 48s. cash. Middlesbrough 35s. cash, and Hematite 45s. 7½d. cash. Copper active: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 10s. to £45. 17s. 6d. cash, and £46. to £46. 7s. 6d. three months. Sales, 1,000 tons. Tin firmer. Straits closed at £91. 12s. 6d. to £92. 2s. 6d. cash, and £92. 5s. to £92. 15s. three months. Sales 100 tons. Australian, £92. cash. English ingots, £95. Lead: Weak Spanish, £9. 10s. to £9. 12s. 6d. English £9. 15s. to £9. 17s. 6d. Silesian spelter: Ordinary, £17. to £17. 2s. 6d. Antimony, £41. Nickel, 1s. 9d. Quicksilver: First hands, £6. 7s. 6d., second hands, £6. 7s. *Copper shares* quiet: Cape, 1½ to 1½. Copiapo, 2½ to 2½. Libiola 3¼ to 3¼. Mason and Barry, 2½ to 2½; Rio Tinto, 15½ to 15½; Tharsis, 4½ to 4½; Namaqua, 1 to 1½; Panulcillo, 1½ to 1½.

GLASGOW, WEDNESDAY.—Market again entirely idle. Scotch closes with buyers at 48s. cash; sellers ask 49s. 6d. Middlesbrough closes with buyers at 35s. cash; sellers ask 35s. 3d. Hematite closes with buyers at 45s. 7½d. cash; sellers ask 45s. 10½d.

WOLVERHAMPTON, WEDNESDAY.—Last week's improvement in pig sales is repeated to-day; and stocks, which accumulated during December and January, are moving off. No improvement in prices. Northampton, 40s. to 42s.; Derbyshire, 42s. 6d. to 44s.; Lincoln, 46s. 6d. to 47s.; Staffordshire cinder pigs, 35s. to 36s.; common foundry, 38s. 9d. to 40s.; best, 53s. For finished iron a slow inquiry. Works only partly engaged. Small rounds, £5. 15s. to £6.; hoops, £6. 5s. to £6. 10s.; and sheets (doubles), £7. to £7. 5s.

REPORT ON MANURE MATERIAL.

There has been greater activity in the market for nitrogenous material throughout the week at hardening values, and there seems to be a disposition on the part of shippers of mineral phosphates to hold for higher prices.

The quotations for 75/80% Florida phosphate rock are somewhat irregular, 8½d. per unit being required in several quarters, and the nearest value being probably 8d. to 8¼d. for cargoes c.i.f. to U.K. Peace River rock, hot-air-dried, is worth about 7d. per unit, and South Carolina 6½d. per unit. Quotations for other descriptions are without alteration.

We do not hear of any business in River Plate cargoes of bones, and the nominal values of anything afloat remains £4 2s. 6d., U.K. or Continent. Crushed Kurrachee bones offer for shipment at £4. 1s. 3d. ex quay Liverpool; £4. 2s. 6d. required ex store. Owing to arrivals, East Indian bone meal is easier, and £4. 2s. 6d. would buy anything on quay. Calcutta may be had at 1s. 3d. to 2s. 6d. per ton less.

There has been a good deal of excitement in the nitrate of soda market, and a large business has been done in cargoes, mostly for the Continent. On spot, 10s. is now the lowest for ordinary quality, and 10s. 1½d. to 10s. 3d. for good to refined. Due cargoes are worth about 10s. November shipments 10s. to 10s. 1½d., December's about 10s. It is becoming more and more evident that supplies to end of April must be short, and a further advance may be looked for.

The demand for finely-ground dried blood for export continues, and high test cannot now be had under 11s. 9d. per unit, in double bags, f.o.b. Liverpool, though a parcel of unground River Plate, arrived, has been sold at 8s. 9d. per unit ex. quay.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm Oil: The demand being firm and supplies small, Lagos has been selling at £32. spot and £32. 5s. to arrive. Cameroon £31. per ton transit; sellers are firm, and prices seem likely to remain so till the arrival of larger supplies. Olive has been in good demand during the week, and has been selling pretty freely. To-day's prices are: Canada, £37.; Messina, £36. 10s. per ton. Linseed has been in stronger demand, and prices have looked up. Liverpool makes are firm at 22s. 3d. to 22s. 6d. per cwt. in export casks. Cottonseed.—The market has been in a state of excitement, and prices have advanced rapidly during the week. To-day 28s. per cwt. is asked for Liverpool refined, at which sellers are very firm and anticipate further advances. Castor oil is firm. Considerable quantities of good seconds Calcutta have been cleared at 23½d., and the price has risen to 2½d. per lb., at which figure there has been a fair business doing. First pressure French is firmly held at 2½d. to 2½d. per lb. Tallow: Our anticipations as to prices for this week have been realised, North American now being quoted 34s. to 35s., and South American 35s. per cwt. Resin (common) is steady and in fair request at 3s. 10½d. Spirits of Turpentine are quiet, but sellers still ask for the 6d. advance made during the week, to-day's price being 25s. 6d. per cwt. Petroleum quiet. American 5d. to 6d., according to quality. Russian refined, 4½d. per gallon.

COLOURS.—Very steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

There is little alteration to report in the market this week. Manganese: There has been one arrival, which goes direct into consumption; prices are steady, Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12 10s., steady. Magnesite (raw lump) continues quiet; raw ground £6. 1cs., and calcined £12. 10s. Bauxite (Irish Hill brand) in request, and large sales being made; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals continue small, and prices firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron

ore flat, Bilbao, Irish, and Cumberland quiet. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal continue in strong demand, and prices are firm. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet with the exception of bleaching powder, for which product the enquiry is abnormal for the time of the year, and makers have been compelled to advance the price to £8. 5s. per ton softwoods, £8. 10s. hardwoods. There is no alteration in caustic soda. Sulphur dull at £4. 5s.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 7s. 6d. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £7. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 5s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; hydrate of barium, £10. per ton nett.

South Durham salt unchanged.

Coals; Market is very dull and prices continue weak. Best North-umbrian steam about 8s. 6d. per ton; small steam, 3s. per ton; gas coals in fair demand and price varies with the condition of the collieries in regard to contracts, from 6s. 3d. to 7s. per ton. Bunker coals depressed, price extremely weak; best Durham coke easier and is now quoted at 14s. per ton f.o.b.

With regard to the Northumberland miners' dispute, it is stated that the ballot recently taken indicates that the request of the masters for a reduction of 5 per cent. in wages has been rejected by a large majority.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly copper report dated Liverpool, February 3rd, 1893, state:—

Charters for the whole month of January are advised as only 1,000 tons; therefore the quantity for the first fortnight had been over-estimated. Same time last year the quantity was 1,950 tons. Exchange 17½.

Havre Stock.—Excess of 3,322 tons. We are now informed that great pains have been taken to verify these stocks, and that the figures now given may be considered authentic. The actual error discovered was an excess of 3,322 tons on the previous returns, and which excess is now said to have existed for the past four years. We have only to add that we hope in future great attention and care will be given to the making up of French stocks, and that such errors will not occur again.

Since our last report of January 18th, about 8,500 tons of G.m.b.'s and G.o.b.'s have been sold at from £45. 17s. 6d. cash and £46. 7s. 6d. three months, down to £44. 18s. 9d. and £45 8s. 9d. respectively on January 30th. Since then prices have improved, yesterday there being buyers at £45. 15s. cash and £46. 6s. 3d. three months, the market closing to-day at £46. and £46. 10s. respectively, after touching 2s. 6d. above these rates.

Exports of Copper from Chili during 1892.—We have not yet received the exact figures, but they are supposed to be about 22,250 tons, being an increase of about 2,400 tons over the quantity exported in 1891.

Anaconda Matte.—All that was sold up to the end of August last year for forward delivery to the present time has now, with the excep-

tion of a few hundred tons, arrived, so that for some months to come no more is expected, and this falling-off must cause a considerable decrease in the future stocks.

The total stocks in Liverpool, Swansea, London, and Havre show an increase of 3,304 tons for the fortnight, which, with an increase of 710 tons for the previous fortnight, makes the total increase of 4,014 tons for the month. The stocks include about 4,000 tons of copper sold, but not yet delivered to smelters. The visible supply shows an increase of 2,431 tons for the fortnight, which, with an increase of 337 tons for the previous fortnight, makes a total increase of 2,768 tons for the month. The total deliveries for the fortnight are 4,913 tons, which, with 3,705 tons for the previous fortnight, makes a total of 8,618 tons for the month. The present stock of English G.M.B.'s in warehouse, Liverpool and Swansea, is 1,240 tons, against 1,437 tons on the 16th inst. The delivery in Liverpool and Swansea was 202 tons, but 5 tons being added to the Liverpool stock, makes a decrease of 197 tons for the fortnight. Refined and manufactured sorts are quiet, quotations being: Tough cake, £48. 10s. to £49.; best select, £50. to £50. 10s.; Indian sheets, £53. to £53. 10s.; strong sheets, £58.; and yellow metal sheets, 4½d. per lb.

The sales of furnace material comprise—at Liverpool: 200 tons Mason's precipitate and 79 tons Argentiferous Chili Regulat, both on private terms; and 480 tons Chili Regulat, to arrive, at 9s. 3d. At Swansea: 500 tons Quebrada ore and 400 tons Quebrada Regulat, on private terms.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

At the reduced prices, the mineral oil and solid paraffin markets are all really very active, and the outlook would be not so bad if the margin of profit were not so extremely slender. Last week conferences have been taking place in London with Mr. Bedford, of the Standard Oil Company of America, but there is no prospect whatever of any renewal of the late compact for the upholding of better prices in scale and wax. Indeed, the American producers are freely fixing for fully a year in advance at the present low prices, and that is so both on the Continent and in Great Britain. Therefore if the salvation of the Scottish industry depends solely upon an early rise of prices, its prospects are as gloomy as can be.

With the exception of bleaching powder and chlorate of potash the general market is marked only by further indications of weakness, although not to the extent of any actual dropping in the prices. Now, however, that the year is fairly entered upon, some early improvement in the market is looked for.

Sulphate of ammonia is rather firmer than it was a week ago, and the spot price may now be stated at £10. 7s. 6d. to £10. 10s.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 28s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¼d., less 5% Liverpool; nitrate of soda, 9s. 9d.; sulphate of ammonia £10. 7s. 6d. to £10. 10s. f.o.b. Leith; salammoniack, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¼d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5¼d. a gallon; paraffin oil (burning) 4¼d. to 5½d. according to quality at works, for Scotch buyers (English sales about ½d. lower); ditto (lubricating), 86°, £3. 10s., to £3. 15s., 88°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 3,900 bags.

New Companies.

Robbins, Lane, and Pinniger, Ltd.—CAPITAL, £30,000. in £10. shares. This company has been formed to carry on the business of coal, coke, and timber merchants, manufacturers of artificial manures, sulphuric acid, and other chemicals. The subscribers to the memorandum of association are:—E. Lane, Woodborough, merchant; F. R. Lane, Pewsey, Wiltshire, merchant; T. L. Pinniger, Pewsey, Wiltshire, merchant; C. B. Lane, Woodborough, merchant; T. Chandler, Devizes, maltster L. Pinniger, Pewsey, widow.

G. H. Massey and Co—CAPITAL, £6,000. in £25. shares company has been formed to manufacture leather, chemicals to carry on the business of brass and iron founders. The subscribers to the memorandum of association are:—G. H. Stockport, dog collar manufacturer; N. Calvert, Stockport, and T. Ellis, Stockport, out of business; T. Welch, Stockport, business; M. J. Massey, Stockport, married woman; F. J. Stockport, married woman; M. E. Ellis, Stockport, married woman; J. Welch, Stockport, married woman.

Hungarian Petroleum Co., Ltd.—CAPITAL, £75,000. shares. This company has been formed to acquire and certain property in Hungary, and to sink wells to obtain petroleum other mineral oils and products. The subscribers to the memorandum of association are:—F. Pearson, 3, Myddleton-square, E.C., agent; H. J. Woods, 35, Queen Victoria-street, E.C., engineer; Bell, 4, Abchurch-yard, E.C., solicitor; W. Selwood, 4, St. Michael's-alley, E.C.; E. Hart, junior, 14, Moorgate-street, E.C., accountant; H. W. Nicholson, 24, Basinghall-street, E.C., solicitor; A. Stone, 24, Basinghall-street, E.C., solicitor.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR LETTERS PATENT.

- Improved Manufacture of Basic Per-Salts of Iron. C. Dryfus. Grimshaw. 2,982. January 30.
Improvements in Calico Printing. L. Lang. 2,009. January 30.
Protecting Iron and Steel from Rust. E. Jokl and S. Roundell. January 30.
Sealing Wires in Glass. H. H. Lake. 2,048. January 30.
Obtaining Silver and Gold from their Solutions. J. R. Wyde, 1 dining, and D. Watson. 2,081. January 31.
Purifying and Disinfecting Air by Spray Apparatus. J. W. Black. January 31.
Improvements in Apparatus for Purifying Water. H. Collet. 2,109.
Improvements in Diaphragms and Porous Vessels for Secondary Primary Batteries. G. Lentz. 2,134. January 31.
Improvements in the Manufacture of Alumina and Potash Al. Heibling. 2,146. January 31.
Mixing or Saponifying Tars, Oils, and Hydro Carbons for 1 Purposes, etc. C. A. Sahlinstrom and E. Parr. 2,155. January 31.
Improvements in Paints. W. A. Abert and W. Scherel. 2,169. Feb. 1.
Substitute for Leather. E. Drew. 2,172. February 1.
Treating Distillers' Spent Wash. W. S. Squire. 2,201. February 2.
Manufacturing Glass Pipes or Tubes. P. Sievert. 2,260. February 2.
Electrolytical Separation of the Bases of Salts from Saline So. C. T. J. Vautin. 2,267. February 2.
Extraction of Carbonic Acid from Mineral Carbonates. A. van 2,274. February 2.
Smoke Consumer, wholly made of Metal. G. Bocock and J. W. 2,302. February 2.
Improved Apparatus for the Electrolysis of Saline Solutions. Hannay. 2,311. February 2.
Extracting Dye Matter from Logwood. A. E. Alexander. 2,386. February 2.
Separating Copper from its Solutions by means of Iron and Chemical Processes. R. Condera. 2,320. February 2.
Electrolytical Production of White Lead. J. C. Richardson. 2,329. February 2.
New Colouring Matters. J. V. Johnson. 2,370. February 2.
Improved Furnaces for the Combustion of Fuel. A. Boswell. 2,388. February 2.
Improvement in Extincteurs. J. R. Platt and S. Platt. 2,392. Feb. 2.
Improvement in Brine Evaporating Pans. J. Parks. 2,400. February 2.
Apparatus for Reducing Lump Salt to Powder. H. Heap. 2,472. February 3.
Electrolytical Production of Alkalies and Chlorine. J. Marx. February 3.
Improved Apparatus for Concentrating Sulphuric Acid. I. L. 2,476. February 4.
Fire Extincteurs. J. W. E. G. Gibbs. 2,508. February 4.
Improvements in Paper Pulp Strainers. W. C. Sly. 2,517. February 4.
Improved Fuel. M. Cameron. 2,524. February 4.
Apparatus for Ascertaining the Percentage of Fat in Milk, etc. Nahm. 2,542. February 4.

GERMAN PATENTS FROM FEBRUARY, 1893

Specially abstracted by Dr. H. Zerener, civil engineer, the Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to answer queries from the Journal gratis.

- 8 K. 9928. Improvements in the use of fluoride or chrome at fluorides of chrome in dyeing and calico printing. Rud. Koe Oestrich i/Rheingau.
8 St. 3306. Apparatus for dyeing, washing, etc., yarns in the bobbin. Hugo Stommel, Elberfeld.
12 H. 12029. Process for obtaining pure Isoeugenol. Dr. F. v. Nachf., Radebeul b/Dresden.

8365. Process for obtaining blue dyes from molybdate of ammonium and phosphoric acid. Dr. F. W. Schmidt, München.
 463. Leather-tanning with oxychloride of iron and chloride of dium. Paul R. Reinsch, Erlangen i/B.
 2526. Process for mordanting hair for felt and hat-fabrics. Emile 78, Paris.
 578. Process for obtaining granular salt. Albert L. Lawton, Rochester, 120, New York.
 120. Kiln for the continuous calcination of lime, etc. Chr. Diesler, 120, Berlin.
 822. Improved process for obtaining acetyl-amido-phenylesters of lactic acid. Farbenfabriken vorm. Fr. Bayer and Co., Elberfeld.
 434. Process for obtaining iodosobenzoic acid. Farbwerke vorm. Meister Lucius and Brüning, Höchst a/M.
 2847. Process for obtaining B.-Cymidin from oxims of camphor 120, H₂O, which are methyl-ketones. Haarmann and Reimer, 120, H₂O.
 312. Method for obtaining the acetyl and propionyl derivatives of phenylurethanes and their esters. E. Merck, Darmstadt.
 187. Process for obtaining pure nitric acid. Oscar Guttmann, London.
 8645. Apparatus for concentrating sulphuric acid. L. Kessler, 120, Paris.
 592. Process for obtaining prussiates of alkaline metals and earths. 120, Paris.
 315. Apparatus for mordanting, dyeing and rinsing yarns. Otto 120, Paris.
 335. Process for obtaining nitrous esters of eugenyl and phenyl- 120, Paris.
 genyl. Farbwerke vorm. Meister Lucius and Brüning, Höchst a/M.

22 B. 13464. Process for obtaining a-naphthylaminedisulphonic acid from 120, Paris.
 acet a-naphthalide or a-3 acet a-naphthalidisulphonic acid. Badische 120, Paris.
 Anilin und Soda-Fabrik, Ludwigshafen a/Rh.
 22 E. 3529. Process for obtaining dyes from cinchonidin and amidobenz- 120, Paris.
 hydrol. Prof. Dr. Alfred Einhorn, München.
 22 F. 6299. Process for obtaining m-diamidodiphenic and diphenylin- 120, Paris.
 dicarbonic acids from m-nitrobenzaldehyde. Farb. vorm. Meister 120, Paris.
 Lucius and Brüning, Höchst a/M.
 22 K. 7931. Process for obtaining new black or red-brown dyes for wool. 120, Paris.
 Farb. vorm. Meister Lucius and Brüning.
 22 O. 1631. Process for obtaining amidophenolsulphonic and amido- 120, Paris.
 cresolsulphonic acids. K. Oebler, Offenbach a/M.
 75 K. 3981. Apparatus for the electrolysis of aqueous solutions of common 120, Paris.
 salt. Elisha Barton Cutten, New York.
 75 M. 9450. Process for purifying the chloride of sodium obtained in the 120, Paris.
 manufacture of nitrate of potash.

Gazette Notices.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

WILSON, WILLIAM JOSEPH, Oxford, chemist and oil and colourman.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending February 4th.

Acid—
 Ind, 70 pkgs. T. H. Lee
 20 Phillips & Graves
 100 A. & M. Zimmermann
ne—
 Ind, 1 pkg. Phillips & Graves
—
 ce, 865 c. Arnati & Harrison
ony—
 ey, 9 t. Laughland, Mackay
 & Co.
 alia, 4 Vivian, Younger, & Co.
 any, 45 J. J. Pratt & Son
 30 L. & I. D. Jt. Co.
 Turkey, 6
 Turkey, 72 French & Smith
ic—
 any, 13 pkgs. F. Smith
es—
 um, 40 cks. J. B. Orr & Co.
 any, 57 W. Fenton
 um, 66 W. Harrison & Co.
ie of Manganese—
 any, 15 pkgs. Petri Bros.
ine—
 any, 42 A. & M. Zimmermann
chouc—
 mbique, 35 c. Findlay, Durham,
 & Co.
 ates, 211 Williams, Torrey,
 & Co., Ltd.
 100 Hammond & Co.
 dies, 100 Huttenbach & Co.
 gascar, 16 Lewis & Peat
 bar, 1 Clarke & Smith
 ze, 14 Prop. Bull Wf.
ic Acid—
 Ind, 12 pkgs. T. H. Lee
Oil—
 ze, 60 brls. Burrell & Co.
 9 Grindley & Co.
 103 Beresford & Co.
 36 Lucas & Spencer's Wf.
 25 cks. J. T. Morton
 um, 30 Fuerst Bros.
 30 Beresford & Co.
 ze, 22 Windschuegl & Co.
 7 cs. W. G. Frith
 20 F. Boehm
 10 B. & N. Whys. Co., Ltd.
 30 R. Morrison & Co.
 dies, 15 Co-op. Lightge. Assn.,
 Ltd.
 31 Anderson, Weber, &
 Smith

Chemicals (otherwise undescribed)

Holland, 618 Philipps & Graves
 Germany, 7 pkgs. Craven & Co.
 " 18 T. H. Lee
 29 A. & M. Zimmermann
 U. States, 441 H. Wallace & Co.

Citrate of Lime—

Italy, 10 pkgs. Fellows, Morton,
 & Co.

Copperas—

Germany, 27 pkgs. B. & N. Wf. Co.,
 Ltd.

Cream of Tartar—

France, 3 pkgs. W.C. Bacon & Co.
 2 Smith, Abbott, & Co.
 Holland, 14 B. & F. Wf. Co., Ltd.
 Italy, 3 Galbraith, Pembroke,
 & Co.
 France, 10 B. & F. Wf. Co., Ltd.
 6 E. W. Carling & Co.
 Spain, 10 B. & F. Wf. Co., Ltd.
 9 G. Toms

Dyestuffs—

Aniline
 Belgium, 5 pkgs. Sawyer, Sons, & Co.
Annatto
 Ceylon, 26 pkgs. Hoare, Wilson,
 & Co.

Arachide

Holland, 1 pkg. Philipps & Graves
Argols
 Italy, 856 pkgs. B. Jacob & Sons
 20 Thames S. T. & L. Co.,
 Ltd.

Cochineal

France, 113 Ross & Deering
Cochineal
 Canaries, 41 pkgs. Swanston & Co.
 13 Kuhner, Henderson,
 & Co.
 10 Johnson, Hicks, & Co.

Cutch

Rangoon, 1,393 pkgs. Leach & Co.
 207 A. Howden & Co.

Extracts

France, 400 pkgs. A. J. Humphrey
 " 3 J. Burnett & Sons
 " 162 L. J. Levinstein & Sons
 " 113 B. & F. Wf. Co., Ltd.
 U. States, 50 W. Burton & Sons

Fustic

Jamaica, 68 t. Anderson, Anderson,
 & Co.
 " 16 E. D. & F. Man
 " 110 J. E. Scott
 9 Park, Macfadyen, & Co.

Gambier

E. Indies, 470 pkgs. J. Greig
 " 447 Beresford & Co.
 " 494 L. & I. D. Jt. Co.
 " 3 Adamson, Gillfillan,
 & Co.

Indigo

Germany, 36 cts. Becker & Ulrich
 E. Indies, 118 Ross & Deering
 " 11 Elkan & Co.
 " 38 H. Johnson & Sons
 " 100 Wallace Bros.
 " 236 R. Von Glehn & Sons
 " 56 Arbutnot, Latham,
 & Co.

" 61 W. Brandts, Son, & Co.
 " 37 Philipps & Graves
 " 10 F. W. Heilgers & Co.
 " 27 Bencke, Souchay, & Co.
 " 2 Walker, Munsie & Co.

" 12 H. Grey, jr.
 " 506 L. & I. D. Jt. Co.
 " 6 Darling Bros.
 " 5 F. Huth & Co.
 " 23 Seton, Laing, & Co.
 " 2 Patry & Pasteur
 " 110 Ralli Bros.
 " 15 J. Owen
 " 11 F. Stahlschmidt & Co.

France, 20 Elkan & Co.
Myrabolams
 E. Indies, 203 pkgs. Clarke & Smith
 1,000 A. Hagan
Orchella
 Portugal, 13 pkgs. N. Smith

Saffron
 France, 3 pkgs. Stockwell & Co.
Sumac
 Italy, 500 pkgs. J. Kitchin, Ltd.
 150 Vokins & Co., Ltd.

Tanners' Bark
 Melbourne, 37 t. Baxter & Hoare
Turmeric
 China, 160 pkgs. E. H. Cousens
 & Co.

Valonia
 A. Turkey, 288 t. A. & W. Nesbitt
 80 Hicks, Nash, & Co.
 E. Indies, 50 Beresford & Co.
 A. Turkey, 46 J. Graves
 " 100 Boucher, Mortimore,
 & Co.
 " 163 C. & G. Gulbenkian
 & Co.

Dyestuffs (otherwise undescribed)
 Cape, 44 pkgs. Hammond & Co.
Farina—
 Holland, 100 pkgs. Prop. Chamblin's
 Wf.
 Germany, 50 T. H. Lee
 Holland, 50 G. Hornzee
 " 50 H. Lorenz

Gamboge—
 E. Indies, 2 cs. H. Gluck & Co.
Glucose—
 U. States, 2,300 pkgs. 3,680 c. Union
 L. Co., Ltd.
 " 250 250 c. Trier, Meyer,
 & Co.

U. States, 200 J. Barber & Co.
 " 30 165 H. Johnson &
 Sons
 " 300 300 L. Norman & Co.
 " 400 1,098 R. G. Hall & Co.
 " 100 355 Pillow, Jones,
 & Co.
 " 400 400 Fellows, Morton,
 & Co.
 " 50 301 Page, Son, &
 East

Lead Acetate—
 Germany, 16 F. Boehm

Manganese—
 China, 45 t. McQueen Bros.

Manure—
 France, 57 t. J. Burnett & Sons

Methyl Alcohol—
 Belgium, 7 cks. W. G. Blagden

Naphthol—
 Holland, 4 pkgs. Carey & Sons
 Germany, 6 T. H. Lee

Nickel Salts—
 Germany, 3 pkgs. Johnson, Matthey,
 & Co.

Ochre—
 France, 44 cks. W. Harrison & Co.
 " 33 brls. Williams, Torrey,
 & Co., Ltd.

Manure—
 Holland, 135 Lake & Williams
 4 cs. Philipps & Graves

Painters' Colours—
 U. States, 3 pkgs. J. Watson & Co.
 France, 44 cks. Arnati & Harrison
 Belgium, 47 T. H. Lee
 Germany, 2 Becker & Ulrich
 France, 2 pkgs. Bernu, Peron,
 & Co.

Germany, 4 L. & I. D. Jt. Co.
 " 4 T. H. Lee
 France, 43 Flageolet & Co.
 Belgium, 38 T. Palmer
 Germany, 3 cks. Burrell & Co.

Paraffin Wax—
 U. States, 50 pkgs. Prod. Brokers Co.
 " 140 cs. Williams, Torrey,
 & Co.

" 700 brls. H. Hill & Sons
 " 100 C. Ogleby & Co.
 " 1,047 J. H. Usnar & Co.
 Rangoon, 1,500 H. Hill & Sons

Phosphate Rock—
 France, 300 t. Lawes Chemical M.
 Co.

U. States, 1,050 C. Page & Co.
 " 1,300 A. Hunter & Co.
 Holland, 300 Lawes Chemical M. Co.
 Belgium, 50 Miller & Johnson

Pitch — Belgium, 38 brls. France, 36 G. Dards Poth, Hille, & Co.	Acids — Bordeaux, 6 cs. Rotterdam, 1 ck.	Aluminium — New York, 5 pkgs. Pickford & Co.	Ammonium Sulphate — Rotterdam, 6 cs.	Barytes — Antwerp, 21 cs. 40 bgs.	Bone Ash — Campana, 448 bgs.	Boric Acid — Leghorn, 3 cs.	Borate of Lime — Antofagasta, 1,500 sks. Cockbain, Allardice & Co.	Borax — Valparaiso, 809 bgs.	Castor Oil — Leghorn, 20 cs. Calcutta, 2,000 Ralli Bros.	Chemicals (otherwise undescribed) — Rouen, 17 cs. R. J. Francis & Co.	Colour — In transit, 20 cs. Rotterdam, 10 cs.	Cream of Tartar — Bordeaux, 1 ck. Barcelona, 10 hds. Tarragona, 5 pps.	Dyestuffs — Argols Bordeaux, 23 cs. Cochineal Las Palmas, 34 bgs. Kennedy & Moore	Extracts Bordeaux, 450 cs. New York, 150 cs. Fiume, 140 brls. De Clermont & Donner	Fluetic Corinto, 21 logs. D. Midgley & Sons	La Union , 187 t. Tampico, 917 Gambier, 3,038 ps. Oetting & Co.	Singapore , 4,546 bls. Indigo Calcutta, 12 bxs. 459 chts. Kurrachee, 20 Myrabolams Bombay, 667 bgs. D. Sassoon & Co. 6,038 Sumac Palermo, 250 bgs. Phelps Bros. Venice, 50 Palermo, 1,100 690 bls. Barcelona, 100 A. Ruffer & Son	Valonia Smyrna, 104 t. Essayan, Shahum & Co. " 137 Barry Bros. " 54 P. T. Apostolo " 25 2,154 bgs. " 504 bgs. D. A. Gallatti & Co.	Farina — Fiume, 100 bgs.	Glucose — New York, 680 brls. Hamburg, 50 cs.	Horn Piths — Rosario, 15 t.	Iodine — Valparaiso, 17 brls.	Iron Oxide — Trieste, 15 cs.	Limestone — Rouen, 1 crt. R. J. Francis & Co. Antwerp, 1 cs. J. T. Fletcher & Co.	Manganese — Coquimbo, qty. " 1,520 t. Balfour, William- son & Co.	Mineral White — Trieste, 245 bgs. F. Parisi " 150 V. Parzi	Nitrate — Leghorn, 50 bgs.	Ochre — Marseilles, 38 cs. Rouen, 32 cs. R. J. Francis & Co.	Paint — Bordeaux, 1 cs. Paraffin Scale — Philadelphia, 300 brls.	Phosphate — Ghent, 500 bgs. Phosphate of Lime — Antwerp, 500 bgs.	Potash — Portland, 10 brls. Nicuwan & Co. " 38 Wilson, Patterson, & Co.	Pyrites — Huelva, 4,613 t. Matheson & Co. " 1,461 Tennants & Co.	Rosin — Charleston, 3,000 brls. Savannah, 3,953 Bordeaux, 135 cs.	Saltpetre — Hamburg, 2 brls. 1 ck. 190 bgs. Calcutta, 1,673 bgs.	Soap — Leghorn, 350 bxs. Brown Bros. & Co. Naples, 38 J. Braithwaite & Co. N. Orleans, 1,000 brls. M. Video, 61 cs. W. L. Renwick St. Nazaire, 12 cs. Boston, 5 Bordeaux, 1 Bari, 157	Sodium Nitrate — Tocopilla, 3,034 bgs. Grace & Co.	Stearine — Antwerp, 19 bgs.	Tallow — Rouen, 273 bgs. R. J. Francis & Co.	Tartar — Philadelphia, 100 brls. Bordeaux, 16 cs. Bari, 2	Tartaric Acid — Rotterdam, 19 cs.	Ultramarine — Rotterdam, 5 cs.	Zinc Ashes — Boston, 37 brls.	Zinc Oxide — Rotterdam, 25 cs. Antwerp, 15 bls. J. T. Fletcher & Co.	" 80	HULL. Week ending February 4th.	Asbestos — Flushing, 11 bls. 3 cs. Wilson, Sons & Co., Ltd.	Barytes — Antwerp, 42 cs.	Chemicals (otherwise undescribed) — Hamburg, 200 bgs. Wilson, Sons & Co., Ltd. " 1 ck. G. Lawson & Sons Bremen, 3 cs. 4 cs. Veltmann & Co. Amsterdam, 2 W. & C. L. Ringrose Antwerp, 15 pks. Wilson, Sons & Co., Ltd. Dunkirk, 48 dms. " "	Colours — Hamburg, 2 cs. Wilson, Sons & Co., Ltd. " 15 cs. Rotterdam, 7 G. Lawson & Sons " 17 cs. 37 cs. Hutchinson & Son Antwerp, 52 bgs. Bailey & Leetham Ghent, 3 cs. Bremen, 20 Sissons Bros., & Co. " 3 Hlundell, Spence & Co. Rotterdam, 50 pkgs. 24 pks. W. & C. L. Ringrose Flushing, 80 cs. 62 cs. Wilson, Sons & Co., Ltd.	Cottonseed Oil — N. York, 850 brls. Wilson, Sons & Co., Ltd.	Dextrine — Hamburg, 100 bgs. G. Lawson & Sons	Dyestuffs — Alizarine Rotterdam, 13 pks. 33 pkgs. W. & C. L. Ringrose Flushing, 99 cs. 5 pks. 7 cs. Wilson, Sons & Co., Ltd. Rotterdam, 56 brls. Hutchinson & Son	Argols Marseilles, 119 bgs. Wilson, Sons & Co., Ltd.	Madder Rotterdam, 1 ck. W. & C. L. Ringrose " 2 cs. Hutchinson & Son	Sumac Extract Hamburg, 28 brls. Wilson, Sons & Co., Ltd.	Farina — Hamburg, 100 bgs. Wilson, Sons & Co., Ltd.	Harlingen , 374 Ghent, 289 bxs. Wilson, Sons & Co., Ltd.	Harlingen , 130 bgs. W. & C. L. Ringrose	Glucose — N. York, 200 brls.	Kaolin — Rotterdam, 134 bls. Reckitt & Son " 130 bgs. Hutchinson & Son	Ochre — Gothenburg, 2 cs. Wilson, Sons & Co., Ltd.	Marseilles , 49 Rouen, 83	Phosphate — Ghent, 184 t.	Potash — Bremen, 42 cs. Veltmann & Co. Dunkirk, 30 dms. Wilson, Sons & Co., Ltd.	Rosin — Hamburg, 37 bgs. Wilson, Sons & Co., Ltd.	Soap — Hamburg, 25 cs. Wilson, Sons & Co., Ltd. N. York, 50 brls.	Soda — Rotterdam, 18 cs. W. & C. L. Ringrose	Stearine — Antwerp, 125 bgs. Wilson, Sons & Co., Ltd.	Tar — Marseilles, 25 cs. Tartaric Acid — Rotterdam, 10 cs. W. & C. L. Ringrose	Tin Oxide — Rotterdam, 3 cs. Hutchinson & Son	Ultramarine — Bremen, 4 cs.	Yarnish — Rotterdam, 3 cs. W. & C. L. Ringrose	Waste Salt — Hamburg, 199 bgs. G. Lawson & Sons " 508 " 102 G. Lawson & Sons	White Lead — Rotterdam, 32 cs. A. Sanders & Co.	Zinc Oxide — Antwerp, 108 Bailey & Leetham Rotterdam, 25 cs. Hutchinson & Son	GLASGOW. Week ending February 4th.	Acids — Hamburg, 4 cbys.	Asbestos — Portland, 338 bgs.	Barium Sulphate — Antwerp, 46 cs.	Chemicals (otherwise undescribed) — Hamburg, 19 cs. Rotterdam, 4 cs. J. Rankine & Son	Colours — Rotterdam, 3 cs. J. Rankine & Son Hamburg, 1 brl.
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Dyestuffs—		
Alizarine	129 brls.	J. Rankine & Son
Rotterdam,	27 cks.	
Aniline	38 cks.	
Hamburg,	3 cks.	
Argols	3 cks.	
Bordeaux,	10 brls.	
Extracts	5 cks.	
Baltimore,	30 bla.	450 bgs.
Antwerp,		
Sumas		
Palermo,		
Farina—		
Hamburg,	172 bgs.	
Lead Acetate—		
Hamburg,	17 cks.	
Magnesia—		
Hamburg,	26 brls.	
Ohre—		
Rosen,	26 cks.	
Painters' Colours—		
Hamburg,	3 cks.	2 cs.
Potassium Carbonate—		
Hamburg,	3 cks.	
Pyrites—		
Huelva,	1,740 t.	Tharsis Co., Ltd.
Rosin—		
Baltimore,	250 brls.	John Parker
"	1,000	

Sodium Acetate—	
Rouen,	15 cks.
Stearine—	
Antwerp,	25 bgs.
Sulphur—	
Grigenti,	400 t.
Tartar—	
Bordeaux,	5 cks.
Varnish—	
N. York,	100 brls.
Waste Salt—	
Hamburg,	359 cks.

TYNE.

Week ending February 4th.

Barytes—	
Antwerp,	100 bgs. Tyne S. S. Co.
Limestone—	
Antwerp,	4 crts. 2 frms. 3 cs. Tyne S. S. Co.
Phosphate—	
Antwerp,	100 bgs. Tyne S. S. Co.
Pyrites—	
Huelva,	2,914 t. Scott Bros.
Rosin—	
Savannah,	3,541 brls.

Stearine—	
Antwerp,	7 bgs. Tyne S. S. Co.
Tar—	
Antwerp,	1 pbl. Tyne S. S. Co.
Zinc Oxide—	
Antwerp,	35 brls. Tyne S. S. Co.

GOOLE.

Week ending January 25th.

Alkali—	
Calais,	8 cks.
Caoutchouc—	
Boulogne,	5 cks.
Dyestuffs—	
Alizarine	24 brls.
Rotterdam,	
Indigo	6 cts.
Rotterdam,	
Dyestuffs (otherwise undescribed)	
Boulogne,	44 cks. 5 cs. 13 pkgs.
Farina—	
Hamburg,	250 bgs.
Lead Acetate—	
Hamburg,	32 brls.
Manure—	
Jersey,	55 bgs.
Potash—	
Dunkirk,	19 cks. 40 dms.

Saltpetre—	
Rotterdam,	200 bgs.
Hamburg,	42 brls.
Sodium Nitrate—	
Rotterdam,	20 cks.
Sulphuric Acid—	
Rotterdam,	2 cs.
Tartar—	
Hamburg,	1 ck.
Waste Salt—	
Hamburg,	387 brls. 1,016 bgs.
Zinc Oxide—	
Antwerp,	20 cks.

GRIMSBY.

Week ending January 28th.

Chemicals (otherwise undescribed)	
Rotterdam,	2 pkgs.
Hamburg,	6 cks.
Antwerp,	10
Farina—	
Hamburg,	63 bgs.
Pitch—	
Dieppe,	10 cks.
Zinc Ashes—	
Antwerp,	14 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending February 8th.

Acids—		
Liban,	10 t.	£160
Trinidad,	2 17 c.	11
Jersey,	24 cbys.	53
Fremantle,	10 cs.	11
Alkali—		
Madras,	5 t.	£5
Bombay,	14 c.	81
Alum—		
Salonica,	10 t.	£56
Ammonia (Liquid)—		
Sydney,	54 dms.	£24
Brisbane,	12	11
Ammonium Carbonate—		
Philadelphia,	10 t.	£227
Sydney,	10 cs.	13
Odesa,	7 14 c.	196
Marrakes,	6	20
Ammonium Chloride—		
Amsterdam,	2 t. 18 c.	£100
Salonica,	3	98
Paris,	4 9	149
Sydney,	10	12
Batavia,	1 10	49
Ammonium Sulphate—		
Dumara,	40 t.	£443
Martique,	50 3 c.	534
Canara,	1 8	15
Rotterdam,	106 5	1,100
Dunkirk,	35	357
Rosen,	10	103
Glent,	40 10	403
Antigua,	25	56
Hamburg,	504 16	5,140
Ostend,	60 2	617
Ammonia—		
Sydney,	50 drs.	£38
Brisbane,	10 c.	8
Sulphide of Carbon—		
Melbourne,	100 drs.	£50
Sydney,	200	100
Antwerp,	10	62
Baux—		
Canca,	2 t. 5 c.	£153
Sydney,	8	12
Yokohama,	3	89
Brisbane,	29 kgs.	45
Glent,	10	30
Sulphuric Acid—		
Oporto,	10 cks.	£20
Carbolic Acid—		
Antwerp,	40 drs.	£223
Rotterdam,	9 t. 13 c. 24 cks.	236
Canca,	7 cs.	28

Hamburg,	2	12
Batavia,	1 3	44
Treport,	108 pkgs.	122
Penang,	9	14
New York,	40	255
Carbolic Oil—		
Philadelphia,	8 t. 11 c.	£220
Caustic Potash—		
Brisbane,	2 cs.	£14
Caustic Soda—		
E. London,	10 c.	£15
Madras,	2 t. 1	33
Calcutta,	10	9
Chemicals (otherwise undescribed)		
Colombo,	5 c.	£17
Melbourne,	4 pkgs.	17
Natal,	6	17
Adelaide,	9 cs. 5 kgs. 1 ck.	35
Citric Acid—		
Victoria, B.C.,	1 c.	£8
Calcutta,	2	18
Brussels,	5	40
Brisbane,	5 kgs. 1	48
Amsterdam,	1	9
Oporto,	5 cks.	42
Hamburg,	14 1 t. 7 2 kgs.	611
Coal Products—		
Aniline		
Sydney,	1 cs.	£18
Melbourne,	1	14
Shanghai,	52	237
Aniline Oil		
Dunkirk,	5 drs.	£200
Hamburg,	10	360
Anthracene		
Rotterdam,	150 cks.	£782
Benzol		
Calais,	40 cks.	£370
Rotterdam,	40 2 drs.	378
Hamburg,	24 pkgs.	338
Treport,	12	144
Coal Tar Dyes		
Boston,	18 pkgs.	£355
Creosote Salts		
Philadelphia,	1,237 bgs.	£153
Naphtha		
Treport,	26 brls.	£20
Naphthalene		
Treport,	52 cks.	£49
Pitch		
Alexandria,	450 brls.	£141
Boston,	400	182
Dunkirk,	880 t.	1,295
Havre,	609	853
Rotterdam,	299	419
Terneuzen,	253	354
Salonica,	25	8
Pyridine		
Hamburg,	12 cks.	£100

Tar		
Natal,	40 pkgs.	£18
Hong Kong,	13	13
Toluol		
Hamburg,	30 cks.	£123
Rotterdam,	60	92
Coal Products (otherwise undescribed)		
Melbourne,	35 crts.	£16
Copperas—		
Malta,	5 t. 11 c.	£17
Copper Sulphate—		
Rouen,	5 t. 3 c.	£75
Odesa,	10	155
Bordeaux,	8 17	140
Corrosive Sublimate—		
Malta,	7 c.	£26
Salonica,	5	65
Cream of Tartar—		
Launceston,	5 c.	£30
Adelaide,	1 t.	81
Canterbury,	5	25
Sydney,	2 13	219
Napier,	3	12
Townsville,	3	12
Disinfectants—		
Melbourne,	200 kgs. 3 tks.	£110
Madras,	25 cks.	23
Trinidad,	1 t. 8 c.	48
Sydney,	10 cs. 23 pkgs.	£86
New York,	3 cks.	35
Brisbane,	8	19
Dried Blood—		
Baltimore,	95 t. 8 c.	£800
Guano—		
Jersey,	110 t. 18 c.	£861
Bilbao,	10 1	55
Melbourne,	20	200
Iron Sulphate—		
Oporto,	7 c.	£17
Manure—		
Lisbon,	88 t. 15 c.	£187
Bundaberg,	6	120
Las Palmas,	30	130
Sydney,	50	110
Oratava,	8 15	57
Martique,	49 7	382
Cape Town,	25	58
Guernsey,	55 13	398
E. London,	1 3	73
Havre,	30	130
Malaga,	58 11	435
Jersey,	329 17	2,767
Venice,	148 4	1,000
Rouen,	65	300
Cherbourg,	260 2	878
Oxalic Acid—		
Libau,	5 t. 10 c.	£135
Phosphate Rock—		
Cologne,	150 t.	£450

Phosphoric Acid—		
Brisbane,	10 t.	£180
Boulogne,	12 c.	40
Phosphorus—		
Melbourne,	20 cs.	£201
Potash—		
Sydney,	1 t. 3 c.	£19
Higo,	20 kgs.	30
Yokohama,	2	59
Potassium Bichromate—		
Malaga,	3 cks.	£50
Calcutta,	11 c.	23
Potassium Chlorate—		
Lisbon,	8 c.	£28
Gothenburg,	6	12
Potassium Cyanide—		
Rockhampton,	20 cs.	£177
Potassium Prussiate—		
Sydney,	5 c.	£22
Saltpetre—		
Sydney,	1 t. 9 c.	£34
Gothenburg,	1	21
Oporto,	17 5	346
Santos,	2 4	49
Sheep Dip—		
Melbourne,	3 cks.	£13
E. London,	1,000 dms.	200
Calcutta,	53 pkgs.	44
Soda Crystals—		
Pt. Elizabeth,	1 t. 13 c.	£7
Trinidad,	16	3
St. John's, Nfld.,	1	5
Soda Salts—		
Malta,	3 c.	£11
Sodium Acetate—		
Brisbane,	2 t.	£58
Sodium Bicarbonate—		
Algoa Bay,	5 c.	£4
Reval,	10 t.	75
Townsville,	10	4
Sodium Bisulphite—		
Sydney,	2 t. 10 c.	£16
Sodium Silicate—		
Lytleton,	3 t. 1 c.	£14
Sodium Sulphate—		
Ghent,	60 t.	£90
Sulphur—		
Santos,	1 t. 5 c.	£11
Sulphuric Acid—		
Colombo,	4 t. 16 c.	£17
Sulphuric Anhydride—		
Batavia,	20 t.	£430

Superphosphate—

Bordeaux,	45 t.	£135
Treport,	35	210
Adelaide,	30	90
Melbourne,	10	30

Superphosphate of Lime—

Oporto,	1 t. 6 c. 5 cks.	£35
Almeria,	5	21

Tartaric Acid—

Sydney,	5 c.	£27
Bombay,	10 cks.	42
Fremantle,	3	15
Adelaide,	1 t. 3	124
Calcutta,	2	13
Canterbury,	5	20
Algoa Bay,	3	18
Napier,	4	19

LIVERPOOL.

Week ending February 8th.

Acetic Acid—

Lisbon,	18 c. 2 q.	£12
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Alum—

Vigo,	1 t.	£5
Barcelona,	7 18 c.	49
Constantinople,	3 15	18
Talcahuano,	1 8	8
Tunis,	8 cks.	10

Aluminous Cake—

Calcutta,	12 t. 17 c. 3 q.	£47
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Ammonium Carbonate—

Corunna,	10 c. 3 q.	£14
B. Ayres,	1 t. 4 2	5

Ammonium Chloride—

Corunna,	5 c. 2 q.	£9
Naples,	11 1	19
Trieste,	2 t. 2 1	72
Constantinople,	1	33
Philadelphia,	15 7	346
Antwerp,	1 15 3	37

Ammonium Sulphate—

Rotterdam,	21 t.	£231
Baltimore,	50	517
Genoa,	10 8 c.	110
Venice,	10 7 3 q.	110
Valencia,	62 5 1	690
Almeria,	10 1	6
New York,	50 6 1	560
Las Palmas,	5 1	53
Antwerp,	200 4 2	2,200
Gr. Canary,	14 15 2	159

Asbestos—

Lisbon,	1 cs.	
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Barytes—

Lisbon,	3 cks.	
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Bleaching Powder—

Boston,	213 cks.	
Genoa,	6	
Ghent,	90	
Havre,	37	
Lisbon,	17	
Naples,	15	
New York,	109	
San Francisco,	80	
Valleyfield,	9	
Corunna, 8 brls.		
Rouen,	145	
Boston,	50 t. 2 c.	£426
Callao,	7 3 q	4
Baltimore,	50 10	479

Boric Acid—

Portland, M.,	18 c. 3 q.	£37
Antwerp,	1 t. 2	41
Yokohama,	1	37
B. Ayres,	1 7 3	52
Vera Cruz,	2	2

Borax—

Malaga,	7 c.	£11
Antwerp,	10	29
Havana,	9 t. 18 2 q.	298
Valparaiso,	2 2	59
Adelaide,	1 2 1	32
Vera Cruz,	2 cks.	11

Calcium Chloride—

Fiume,	6 t. 2 c.	£14
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Carbolic Acid—

Rouen,	1 t. 15 c.	£27
Corunna,	10	32
Odessa,	5 4 3 q.	101
New Orleans,	4	214
Philadelphia,	5 7	291
New York,	10 10	511
Rio de Janeiro,	2 1 1	56
B. Ayres,	4	7
Bordeaux,	4	8
Rotterdam,	10	432
Shanghai,	3 cs.	10

Caustic Potash—

Dunedin,	1 t. 4 c.	£30
Bombay,	5	7
New York,	2 13	68

Caustic Soda—

Baltimore,	260 dms.	
B. Ayres,	50	16 brls.
Callao,	50	
Catania,	50	
Ceara,	30	
Chicago,	50	
Fiume,	30	
Genoa,	103	
Las Palmas,	6	
Leghorn,	234	
Naples,	68	
Para,	150	
Piraeus,	4	
San Francisco,	50	
Shanghai,	200	
Sydney,	56	
Talcahuano,	15	
Varna,	16	
Alicante,	20	
Barcelona,	170	142
Bilbao,	32	
Boston,	100	
Dunedin, 20 bxs.		6
Haifa,		20
Hamburg,		900
Hioho,		15
Honolulu,		10
Iquique,		114
Malaga,		18
Malta,		271
Melbourne,		100
Nagasaki,		100
New Orleans,		100
York,		250
Pimental,		30
Pacasmayo,		10
Portland, Or.,		200
Progreso,		100
Rangoon,		14
Rouen,		57
San Sebastian,		50
Savannah,		25
Seville,		70
Tarragona,		30
Valencia,		60
Valparaiso,		50 kgs.
Vigo,		28

Chemicals (otherwise undescribed)

Kurrachee,	18 c.	£28
Nantes,	1 t.	2 q.
New York,	15 16	347
Boston,	2 1	184
Leghorn,	6	9
B. Ayres,	1 1	36

China Clay—

Bombay,	105 t.	
Boston,	450	
Genoa,	5 bxs.	
Leghorn,	1	

Coal Products—

Alizarine Oil		
Lisbon,	1 ck.	
Aniline Colours		
B. Ayres,	1 cs.	
Constantinople,	6	
New York,	2 cks.	
Aniline Oil		
Barcelona,	20 tins.	
Aniline Salts		
New York,	49 cks.	
Pitch		
Cette,	3,450 t.	
Sierra Leone,	20 brls.	
Tar		
Callao,	2 brls.	
Penang,	100	

Colours—

Oporto,	1 cs.	
Belize,	17 dms.	

Copperas—

Constantinople,	3 t. 19 c.	£6
Volo,	17 4	27
Havana,	5 1	16

Copper Sulphate—

Rouen,	30 t.	£480
Tunis,	5 6 c. 2 q.	80
Vigo,	9 15 3	142
Oporto,	5 3 3	57
Bordeaux,	100 1 1	1,505
Venice,	136 11 2	2,154
Marseilles,	41 3	626
Melbourne,	1	17
Genoa,	7 16 1	113
Lisbon,	5 2	76

Disinfectants—

B. Ayres,	8 t. 18 c. 2 q.	£250
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Dried Blood—

New York,	144 t. 1 c. 3 q.	£922
Las Palmas,	4 3 1	26

Farina—

Boston,	20 sks.	
Lima,	2 brls.	

Glucose—

Malta,	30 bgs.	
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Guano—

Tarragona,	50 t.	£482
Malaga,	100	900
Valencia,	37 10 c.	330

Gypsum—

Antwerp,	5 t.	£16
New York,	67 11 c.	248

Iron Oxide—

Baltimore,	14 t. 13 c.	£230
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Lime—

New Orleans,	4 t. 8 c.	£5
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Limestone—

New York,	5 t. 12 c.	
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Litharge—

Winnipeg,	4 cks.	
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Magnesium Sulphate—

Vigo,	1 t. 1 c. 3 q.	£5
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Manganese—

Philadelphia,	239 t.	
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Metallic Sodium—

Rotterdam,	4 t. 11 c. 1 q.	£987
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Nitrate of Lead—

Rouen,	2 t. 8 c.	£49
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Ochre—

Algoa Bay,	20 dms.	
B. Ayres,	60 brls.	
E. London,	50	

Oxalic Acid—

Venice,	11 c. 1 q.	£14
Rouen,	1 t. 2	31
Kurrachee,	11	10

Paint—

Accra,	40 kgs.	
Amsterdam,	4	4 dms.
Calcutta,	24	4 cks.
Candia,	2	6
Cienfuegos,	6	2
Havana,	2	
New York, 4 cs.	200	
Panama,	13	
Porto Alegre,	16	21
Rio Grande do Sul,	3	
Tripoli,	4	
Bahia,	2	
Cadiz,		12
Ferrol,		48
Kentville, N.S., 1 cs.		
Lisbon,	1	
Malta,		49
Sourabaya,	100 kgs.	

Painters' Colours—

Bombay,	11 cs. 2 cks.	
Callao,	10	
Colon,	25	
Jaffa,	7	
Lisbon,	4 13	1 kg.
Maceio,		16 brls.
Maranham,		20
Mayaguez,	13	
Mollendo,	7 2	3 kgs.
Monrovia,	3 dms. 2	1
Pernambuco,	20	
Porto Alegre,	30	
Rio de Janeiro,	1 cs.	6 100
Baltimore,	55	
Batavia,	60 tins.	
C. C. Castle,		18
Coquimbo,	30	
Hamilton,	1	
Havana,	9	125
Limon,		7
M. Video,	10 cs.	5
Para,	1 13 tcs.	1
Paranagua,	8 4 cks.	
St. Thome,		3
Santander,	6 dms. 2	
Talcahuano,	10	
Valparaiso,	300 cs.	2 108
Vera Cruz,	1	

Paraffin Wax—

Rio de Janeiro,	2 cs.	
Genoa,	312 bgs.	
Leghorn,	20	
Rouen,		10
San Sebastian,	241	
Seville,	32	

Phosphorus—

Shanghai,	10 cs.	£100
Hioho,	15	193

Picric Acid—

New York,	2 t. 17 c. 3 q.	£324
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Plumbago—

Rosario,	6 cks.	
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Potassium Bicarbonate—

New York,	2 t. 4 c.	£62
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Potassium Bichromate—

Lisbon,	2 c.	
Ghent,	5 t. 1	
Sydney,	4	

Potassium Chlorate—

Vera Cruz,	1 t.	
Hioho,	10	
Hamburg,	1	
Rotterdam,	1 13 c.	
Philadelphia,	5	
San Juan,	1	
M. Video,	1	
New York,	15 10	
Yokohama,	10	
B. Ayres,	1 15	

Resin—

Patras,	5 brls.	
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Salt—

Accra,	15 t.	304
Boston,	220	
B. Ayres,	4 5 c.	
Gr. Bassa,	24	10
Newport News,	555	
New Orleans,	500	
York,	1,500	
Old Calabar,	297	
Rio de Janeiro,	1 12	
Valparaiso,	4 3	
Wellington,	22	
Axim,	7 1/2	
Barracoe,	15	
Belize,	5	
Benin,	5 7	
Calcutta,	1,892	
Capetown,	1	
Newcastle,	25	
Warre,	7 2	

Salt Cake—

Kohomo,	100 t. 3 c.	1
New York,	2	
Baltimore,	110 5	
Manbenge,	69 15 24	

Saltpetre—

Pernambuco,	1 t. 14 c. 14	
Cephalonia,	8	
Para,	15	
Manaos,	10	

Sheep Dip—

Portland, M.,	1 t. 16 c.	
B. Ayres,	54 17	1

Slize—

Lisbon,	1 ck
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—	2 cks.	4 bgs.	
1,	735	2,500	
la,	24		
	10		
	140	1,000	
	8	40	75 brls.
	25		
	1,102	8,554	
ia,	292	888	
re,	25		
cero,	80		80
	17		
	200		300
	26		125
ouis,	36		30
			20
			5
itals—			
	168 brls.		
	46		
	247		
	15		
		100 cks.	
	140	59	
	50		
rseniate—		70	
	3 cks.		
liborate—			
	125 cs.		
	50		
licarbonate—			
	50 kgs.		
		5 cks.	
	40		
	15		
	25		
	500		
Ont.,	30		
	30		
	7		
	50		
	100	4	
	250	10	
	8 brls.		
orate—			
M.,	20 brls.		
arbonate—			
	4 cs.		
hlorate—			
	25 kgs.		
	120		
	30		
hosphate—			
	2 cks.		
ilicate—			
	35 brls.		
	70		
	10		
	12		
tian,	20 cks.		
	35		
	15		
	32 cks.		
	24 t.		£485
co,	11 c.	2 q.	6
	350	14	1,351
	15		90
	2		13
osphate—			
y,	6 t.	1 q.	£28
osphate of Lime—			
	5 t.	1 c.	3 q.
			£18
a,	25 brls.		
	17 cks.		
	1		
oe—			
me,	10 dms.		
ine—			
	1 brl.		
	20 dms.		
	4 cs.	2 cks.	
	4		2
	8		
	8		
	2		
	6		
tian,	2 brls.		

White Lead—			
Bahia,	20 cks.		
Belize,	106 kgs.		
Dunedin,	2	60	
Ferrol,	1		
Zinc Chloride—			
Bombay,	16 t.	2 c.	£237
HULL.			
<i>Week ending February 4th.</i>			
Alkali—			
Harlingen,	15 cks.		
Ammonium Sulphate—			
Dunkirk,	334 bls.		
Ghent,	585 bgs.		
Hamburg,	567		
Bleaching Powder—			
Bombay,	42 dms.		
Harlingen,	32 cks.		
Hamburg,	1 bl.	6 cks.	
Caustic Soda—			
Bombay,	15 dms.		
Chemicals (otherwise undescribed)			
Amsterdam,	2 cs.		
Antwerp,	2 40 kgs.		
Bombay,	1,410 cks.		
Bergen,	19		
Christiania,	9 cs.	21 cks.	27 pks. 1,245 slbs.
Dunkirk,	28		
Dronheim,	321 slbs.		
Gothenburg,	50 cs.	28 cks.	6 pkgs.
Harlingen,	20		
Hamburg,	2	3	
Kurrachee,	312		
N. York,	48		
Rouen,	15		
Rotterdam,	1		
Cottonseed Oil—			
Antwerp,	357 c.		
Bremen,	450		
Flushing,	340		
Genoa,	170		
Gothenburg,	100		
Marseilles,	893		
Naples,	90		
Rotterdam,	1,156		
Dyestuffs (otherwise undescribed)			
Bergen,	10 bls.		
Flushing,	4 dms.		
Hamburg,	53 cks.		
Rotterdam,	2 kgs.		
Linseed Oil—			
Bremen,	208 c.		
Bombay,	390		
Bergen,	42		
Christiania,	60		
Christiansund,	16		
Dunkirk,	40		
Dronheim,	58		
Genoa,	22		
Rotterdam,	202		
Stavanger,	55		
Painters' Colours—			
Antwerp,	7 cs.	11 cks.	40 kgs.
Bombay,	232	22	
Bergen,	20 kgs.		
Christiania,	2		
Dronheim,	2 cs.	2	
Ghent,	9		
Harlingen,	2		
Hamburg,	1	4	28 pkgs.
Marseilles,	8		
N. York,	239		
Rouen,	18		
Rotterdam,	1	5	
Pitch—			
Antwerp,	207 t.		
Dunkirk,	101		
Size—			
Flushing,	10 cks.		
Soap—			
Antwerp,	100 cs.		
Tallow—			
Bombay,	20 cks.		
Tar—			
Amsterdam,	30 cks.		
Varnish—			
Ghent,	6 cs.		
Hamburg,	1	5 cks.	
Naples,	10		
Rotterdam,	1 ck.		

GLASGOW.			
<i>Week ending February 9th.</i>			
Acid—			
Bombay,	26 t.	5½ c.	£135
Ammonium Sulphate—			
Demerara,	217 t.	5½ c.	£2,189
Italy,	10	1	105
Boric Acid—			
Melbourne,	1 t.		£39
Borax—			
Christiania,	2 cks.		£8
Castor Oil—			
Adelaide,	128 glns.		£36. 10s.
Chemicals (otherwise undescribed)			
Cape Colony,			£42
Chloroform—			
Adelaide,	2½ c.		£22. 15s.
Coal Products—			
Aniline			
Dunedin,	11 c.		£52
Benzol			
Rotterdam,	60 pns.	8 dms.	£563
Dieppe,	22	168 brls.	568
Pitch			
Amsterdam,	52 t.		£41. 12s.
Oporto,	102		£80
Tar			
Singapore,	45 t.		£65
Christiania,	20 brls.		10
Copperas—			
Portland (Me.),	13 t.	19 c.	£31. 10s.
Cottonseed Oil—			
Melbourne,	1 t.	½ c.	£20
Rotterdam,	6		126
Dextrine—			
Melbourne,			£20
Dyestuffs—			
Argols			
Portland (Me.),	1 t.	12½ c.	£23
Fustic			
Portland (Me.),			£30
Sumac Extract			
Portland (Me.),			£23. 19s.
Glucose—			
Cape Colony,	2½ t.		£27
Linseed Oil—			
Cape Colony,		17 c.	£22
Dunedin,	2 t.	5½	52
Portland (Me.),	8	11½	158
Manganese—			
Antwerp,	14 t.	18 c.	£128
Manure—			
Trinidad,	101 t.	14½ c.	£878
Demerara,	47	7½	415
Italy,	236	9	1,195
Paint—			
Natal,	1 t.	17 c	£50
Singapore,	9	18½	134
Adelaide,	2		51
Painters' Colours—			
Cape Colony,			£112
Mauritius,			204
Dunedin,			323
Hong Kong,	12 t.		186
Rotterdam,	1 ck.		8
Paraffin Wax—			
Cape Colony,	4 t.	14 c.	£148
Antwerp,	1	19½	55
Italy,	58	8½	1,585
Phosphorus—			
Dunedin,	2½ t.		£350
Potash Salts—			
Adelaide,	1 t.	14½ c.	£206
Sydney,	2	1½	302
Potassium Bichromate—			
Dunedin,		16½ c.	£35
Japan,	11 t.	16½	444
Antwerp,	10	18	432
Melbourne,		10½	16
Bombay,	2	4½	90
Rotterdam,	52 cks.		711
Italy,	17 t.	10½	723
Rosin Oil—			
Christiania,	10 brls.		£20
Salt Cake—			
Antwerp,	260 t.	4½ c.	£520
Sheep Dip—			
Cape Colony,	120 glns.		£23
Dunedin,	2 t.	13½ c.	157
Sydney,	4	7½	113
Soap—			
Cape Colony,	1 t.	4 c.	£24
Bombay,	2	6½	£26. 10s.

Sodium Bichromate—			
Antwerp,	9 t.	¾ c.	£295
Italy,	24	18	811
Sulphur—			
Demerara,	4 t.	3½ c.	£23
Varnish			
Cape Colony,		8½ c.	£24
White Lead—			
Cape Colony,	4 t.	9½ c.	£92
Dunedin,	4	4¾	85
Hong Kong,	1		£21. 10s.
Wood Spirit—			
Dunedin,		9 c.	£25
TYNE.			
<i>Week ending February 4th.</i>			
Alkali—			
Christiania,	7 t.	16 c.	
Rotterdam,	19	9	
Ammonia—			
Valencia,	15 t.		
Ammonium Sulphate—			
Valencia,	30 t.		
Dunkirk,	30	7 c.	
Anthracene—			
Rotterdam,	29 t.		
Barium Bin oxide—			
Dunkirk,	5 t.	1 c.	
Bleaching Powder—			
Gothenburg,	50 t.		
Christiania,	40	8 c.	
Rotterdam,	16	17	
Lisbon,	9	14	
Dronheim,	9	18	
Carbolic Acid—			
Esbjerg,		14 c.	
Caustic Soda—			
Christiania,	9 t.	16 c.	
Rotterdam,	1	15	
Manure—			
Jersey,	225 t.	10 c.	
Paint—			
Ergastiria,		¾ c.	
Soap—			
Ergastiria,		1 c.	
Soda—			
Esbjerg,	5 t.	17 c.	
Rotterdam,	9	10	
Valencia,	11	8	
Soda Ash—			
Gothenburg,	125 t.	9 c.	
Sodium Nitrate—			
Jersey,	1 t.		
Sodium Sulphate—			
Christiania,		12 c.	
Sulphur—			
Dronheim,	50 t.		
Varnish—			
Rotterdam,		12 c.	
Ergastiria,	20 lbs.		
White Lead—			
Lisbon,	2 t.	1 c.	
GOOLE.			
<i>Week ending January 25th.</i>			
Benzol—			
Hamburg,	28 cks.		
Chemicals (otherwise undescribed)			
Ghent,	2 cks.		
Hamburg,	12		
Coal Products (otherwise undes.)			
Dunkirk,	2 cks.	2 dms.	
Ghent,	20 tins	6	2
Rotterdam,	51		
Dyestuffs (otherwise undescribed)			
Boulogne,	2 cks.	2 brls.	
Ghent,	20 dms.		
Hamburg,	10	27 cks.	
Manure—			
Dunkirk,	457 bgs.		
Hamburg,	100		
Pitch—			
Antwerp,	238 t.		
Dunkirk,	245		
GRIMSBY.			
<i>Week ending January 28th.</i>			
Chemicals (otherwise undescribed)			
Dieppe,	136 pkgs.		
Hamburg,	17	3 cs.	16 cks.

PRICES CURRENT.

WEDNESDAY, FEB. 15th,

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 11/-	50/-
" Glacial	"	0	14	6
Arsenic S.G., 2000	"	0	14	6
Fluoric	per lb.	0	0	3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 1/4
Nitrous	"	0	0	1 1/4
Oxalic	nett	0	0	3 1/4
Phosphoric, 1750°	"	0	1	2 1/2
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	5	0
" " 150°	"	1	5	0
" " (free from arsenic, 145°)	"	1	6	0
Sulphurous (solution)	"	2	15	0
Tannic (pure)	per lb.	0	1	2
Tartaric	"	0	0	11 1/2
Arsenic, white powdered	nett per ton	13	10	0
Alum (loose lump)	"	5	5	0
Alumina Sulphate (pure)	"	5	0	0
Aluminium	per lb.	0	4	0
Ammonia, Anhydrous	"	0	1	2
" " 880°=28°	per lb.	0	0	2 1/2
" " =24°	"	0	0	1 1/4
" Carbonate	nett	0	0	3 1/4
" Muriate	per ton	20	0	0
" " (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-	
" Nitrate	per ton	38	10	0
" Phosphate	per lb.	0	0	10 1/4
" Sulphate (grey) London	per ton	10	11	3
" " (grey) Hull	"	10	11	3
Aniline Oil (pure)	per lb.	0	0	7 1/4
Aniline Salt	"	0	0	6 1/4
Antimony	per ton	45	10	0
" (tartar emetic)	per lb.	0	1	0
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	7	10	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	45/-	to 75/-	
Bleaching Powder, 35 %	nett	7	10	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-	
Coal Tar Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	8
Magenta	"	0	3	9
Coal Tar Products				
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	8
" 50/90	"	0	1	6
Carbolic Acid (crystallised 40°)	per lb.	0	0	7 1/2
" " (crude 60°)	per gallon	0	2	6
Creosote (ordinary)	"	0	0	1 1/4
" (filtered for Lucigen light)	"	0	0	1 3/4
Crude Naphtha 30 % @ 120° C.	"	0	0	11
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	"	1	6	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	2
Coke-oven Oils (crude)	"	0	0	1 1/4
Copper	per ton	45	10	0
" Sulphate	"	16	5	0
" Oxide (copper scales)	"	42	0	0
Glycerine (crude)	"	13	0	0
" " (distilled S.G. 1250°)	"	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	11	0	0
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white	"	25	15	0
" brown	"	17	10	0
" bonat: (white lead) pure	"	20	0	0
" ate	"	20	0	0
Lime, Acetate (brown)	per ton	6		
" " (grey)	"	10		
Magnesium (ribbon and wire)	per oz.	0		
" Chloride (ex ship)	per ton	2		
" Carbonate	per cwt.	1		
" Hydrate	per ton.	17		
" Sulphate (Epsom Salts)	per ton	2		
Manganese, Sulphate	"	17		
" Borate	per cwt.	2		
" Ore, 70 %	per ton	4		
Methylated Spirit, 61° O.P.	per gallon	0		
Naphtha (Wood), Solvent	"	0		
" Miscible, 60° O.P.	"	0		
Oils:—				
Cotton-seed	per ton	28		
Linseed	"	22		
Lubricating, Scotch, 890°—895°	"	7		
Petroleum, Russian	per gallon	0		
" American	"	0		
Potassium (metal)	per oz.	0		
" Bichromate	nett per lb.	0		
" Carbonate, 90% (ex ship)	per ton	18		
" Chlorate	per lb.	0		
" Cyanide, 98%	"	0		
" Hydrate (Caustic Potash) 80/85 %	per ton	22		
" " (Caustic Potash) 75/80 %	"	21		
" " (Caustic Potash) 70/75 %	"	20		
" Nitrate (refined)	per cwt.	1		
" Permanganate	per cwt.	3		
" Prussiate Yellow	per lb.	0		
" Sulphate, 90 % (ex ship)	per ton	9		
" Muriate, 80 % (do.)	"	8		
Silver (metal)	per oz.	0		
" Nitrate	"	0		
Sodium (metal)	per lb.	0		
" Carb. (refined Soda-ash) 48 %	nett per ton	6		
" " (Caustic Soda-ash) 48 %	"	5		
" " (Carb. Soda-ash) 48 %	"	5		
" " (Carb. Soda-ash) 58 %	"	5		
" " (Soda Crystals)	"	3		
" Acetate (ex-ship)	"	17		
" Arseniate, 45 %	"	11		
" Chlorate	per lb.	0		
" Borate (Borax)	net, per ton.	29		
" Bichromate	per lb.	0		
" Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton	11	0		
" " (74 % Caustic Soda)	"	10		
" " (70 % Caustic Soda)	"	9		
" " (60 % Caustic Soda)	"	8		
" " (60 % Caustic Soda, cream) (f.o.b.)	"	8		
" Bicarbonate	"	6		
" Hyposulphite	"	7		
" Manganate, 30%	"	16		
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0		
" Nitrite, 98 %	per ton	30		
" Phosphate	"	15		
" Prussiate	per lb.	0		
" Silicate (glass)	per ton	5		
" " (liquid, 100° Tw.)	"	4		
" Stannate, 40 %	per cwt.	3		
" Sulphate (Salt-cake)	per ton.	1		
" " (Glauber's Salts)	"	1		
" Sulphide	"	7		
" Sulphite	"	6		
Strontium Hydrate, 100%	"	8		
Sulphocyanide Ammonium, 95 %	per lb.	0		
" Barium, 95 %	"	0		
" Potassium	"	0		
Sulphur (Flowers)	per ton.	8		
" (Roll Brimstone)	"	6		
" Brimstone: Best Quality	"	4		
Superphosphate of Lime (26 %)	"	2		
Tallow	"	26		
Tin (English Ingots)	"	95		
" Crystals	per lb.	0		
Zinc (Spelter)	per ton	17		
" Chloride (solution, 96° Tw.)	"	5		

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301.

SATURDAY, FEBRUARY 25, 1893.

Vol. XII.

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Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday** 3.

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CURRENT TOPICS.

PUBLIC ANALYSTS AND THE PUBLIC.

TO infer that public analysts are analysts whose profession is to champion the cause of the public in the anti-adulteration crusade which is now in progress, would be a very natural inference, and one which has become truer of late years than heretofore. Not only have public analysts adopted the cause of those who are working so energetically to expose adulteration in all its phases, but they have also recognised the claims of those who are to be prosecuted, through their instrumentality for selling adulterated goods, to be dealt with justly.

The deputations which have waited on the Local Government Board so frequently during the past few months, have all put forward some special grievance against the Food and Drugs Act, etc., but, the complaints which have been made, though originating from interested parties, have not been wholly chimerical. It is pretty generally admitted by those who have seen anything of the working of the Food and Drugs Act, that it works very imperfectly at times, and occasionally unfairly. The public analyst of the City of London has emphasised this point in his last report. He also calls attention to a matter, which has already been referred to in these columns on more occasions than one, namely, the additional difficulty of working successfully an inadequate Act, when there is so much friction between the public analysts, and the authorities who constitute what is virtually a Court of Chemical Arbitration at Somerset House.

A Bill is at present before Parliament which deals with the amendment of the Food and Drugs Act, and also the Margarine Act, while the Cheshire County Council have passed a resolution asking the Government to sanction a measure to render compulsory the labelling of artificial cheese, on lines closely resembling those on which the Margarine Act is constructed. But the Society of Public Analysts has taken still more vigorous steps. Recognising that the very reports of the Local Government Board show that the Food and Drugs Acts are wholly devoid of practical utility in certain parts of the country, and that they must be enforced with equal diligence everywhere it they are to be of real service, a resolution to that effect was adopted at a meeting recently held to consider the matter.

The same Society has also performed a public service in dealing with the question of the advisability of Somerset House acting as referee in cases where analysts differ as to the purity of certain comestibles. This question, which would ultimately become a burning one, has been in a smouldering state for some time, and it is as well that it should be dealt with before it kindles further. After a good deal of discussion the following resolutions were adopted: "That, in order that the Local Government Board should have better control over the working of the Acts, a portion of the expenses of working them should be borne by the Imperial revenue; that, in view

of this, it is desirable that there should be a duly constituted chemical department of the Local Government Board, with whom the public analysts, as officers of the Local Government Board, should be placed in direct relation; that the present system of reference in the case of disputed analyses is unsatisfactory and ought to be entirely re-modelled; that the compulsory combinations of the two offices of medical officer and public analyst is in the public interest undesirable; that provision should be made to insure better than heretofore the proper qualification of officers under the Act." These resolutions cover a lot of ground, and are likely to affect many if followed up; but there is not the slightest doubt that they, one and all, offer more genuine protection to both the buyer and seller, for with the improvements of the machinery for the execution of the law, there is more likelihood of the law itself being satisfactorily amended.

MORE AMMONIUM SULPHATE TROUBLES.

The manufacture of sulphate of ammonia from gas liquor, which is now carried on to such a large extent, seems every now and then to cause a great deal of trouble in certain places. The South Metropolitan Gas Company, who about sixteen months ago installed a sulphate plant, are now being taken to task for emitting noxious vapours. Our old friend the "devil water" is not the offender on this occasion, but sulphuretted hydrogen gas is the source of complaint.

How this gas manages to escape, and whether it ought to be possible for such a contingency to arise with a well arranged plant, are points upon which we must refrain from offering an opinion, as the matter is at present *sub-judice*, but there is no doubt that hydrogen sulphide gas, in appreciable quantity, does not possess a very melliferous odour, and is likely not only to be a nuisance in an inhabited neighbourhood, but to do damage to private property.

A barometer, and a family bible were brought into court to show the effect this gas had had, but the most convincing proof apparently was when Lord Justice Smith applied his olfactory organ to some paint scrapings which had been acted on by the hydrogen sulphide gas, and upon which some hydrochloric acid had just been poured. We have known those who did not dislike the smell of this gas, and even considered it a luxury, as having a sweetish smell, but they were chemists, and so possibly more amenable to self persuasion than judges and Q.C.'s, for his lordship and the learned counsel in this case seemed to take a different view as to the sweetness of the odour.

THE WHITE LEAD COMPANY.

Judging from the report made by this Company when they threw open their works at Possil Park recently, and invited a number of Press representatives to inspect the same, it seemed as if everything was going as smoothly as it was possible for things to do, but we have already expressed our doubts as to the feasibility of lead sulphate supplanting white lead. The Chairman spoke hopefully at the general meeting of this Company, which was held last week, but it is rather strange that with such a good thing in hand the Company should turn their attention to the manufacture of more remunerative products. The cause of the misfortune which has attended the Company so far is apparently attributed by the directorate to mismanagement, who have at last learnt more about the process than the inventor knew himself. This was a matter upon which naturally there were two opinions, and a good many hard things were said during the passage of arms which ensued between the inventor and the Chairman. Be this as it may, however, and granted that the

works will in future be conducted in such a way as to give perfect satisfaction to the directors, we still incline to the opinion that greater success will attend the manufacture of those more remunerative articles than the production of sulphate as a substitute for hydrated carbonate of lead.

REVIEW OF THE FRENCH MANURE TRADE IN 1892.

MONS. MAIZIÈRES, writing in *L'Engrais* on the Manure of France during the past year says the year 1892 has been distinguished by any very prominent advance that directly concerns the trade in Chemical Manures. The chief point which is worthy of notice is the fact that the consumption of manure continues to increase throughout the whole of France, and the maximum consumption has by no means been attained. All products have not enjoyed the same degree of extended consumption which characterizes the Market in general. Those nitrogenous materials which show clearly and quickly their influence on crops, have received most attention from agriculturists. Their use has been so largely adopted, as instances to affect detrimentally the sale of other nitrogenous compounds which act more slowly. The consumption has developed with rapidity that there seems for the present to be a temporary limit to the total quantities of sodium nitrate, sulphate of ammonia and other nitrogenous materials employed annually by agriculturists, practically stationary, or at all events continues at about its present level which will only be exceeded when certain districts in the South-East determine to make a more practical and extended use of artificial manures for the purposes of cultivation. The consumption of phosphate materials used has on the contrary increased very rapidly and continues to do so. The amount of phosphatic manure supplied to the agriculturists of France is certainly double what it was two years since, and it is thought that the demand will increase and more. The phosphoric acid employed in agriculture is chiefly drawn from two sources, namely, superphosphates and basic phosphates. The direct use of mineral phosphates in a fine state of division is far from general, such phosphates are only used in a few French agricultural districts and then only in the West, where basic phosphate is capable (in the same way as the basic phosphates) of neutralizing the soils which often are of an acid nature.

Superphosphates however have made their way into all parts of the country, from the West across to Bretagne, which is the stronghold of sellers of mineral phosphates. All the regions of the South-West from La Rochelle to Bayonne already consume considerable quantities of superphosphates. Basic slags have found a considerable sale, especially in Germany where they have earned for themselves a good name, thanks to the influence of agricultural authorities. The efficiency of these slags is, however, occasionally exaggerated, although they undoubtedly possess considerable merit as fertilizing agents. This new product has been as successful a rival to superphosphates as mineral phosphates have been, and consequently the manufacture of superphosphates in Germany the last two years has been on the decline. The demand for superphosphates has been so keen that the exceptional activity threatens to exhaust available stocks at the various Steel Works, and consequently the product is expected to be scarce in foreign markets during the year. This great increase in the use of slags in Germany will bring about in a little while, an increased demand for superphosphates for the beneficial effects of phosphoric acid upon crops is recognized in every agricultural district. Consequently as soon as basic slags become scarce, and consequently dearer, farmers will not give up the use of phosphatic manures, but will return to a more extensive use of superphosphates.

When considering the future prospects of the present year we foresee a very probable likelihood of phosphatic manure being in strong demand, especially superphosphates. This tendency of an increased consumption of superphosphates augurs well for the prospects of the phosphate industry in those provinces in which it is carried on. The depression which has affected so strongly the work of phosphatic materials, has contributed considerably to the revival of the agriculturists. Possibly a more general use of phosphate in agriculture will tend to alleviate the present depression, and about shortly a reaction in prices. The workers of mineral phosphate, therefore, who have formerly succeeded in combating successive waves of depression which has passed over their industry, will be able to reap later on, the fruits which they would have likely gathered before. This depression in the phosphate industry, about which the discovery and exploitation of such a number of deposits, is also one of the general features of the past year.

at one sees as regular and persistent a depression in prices experienced during the past year; indicative of which it is stated that phosphate testing 70% to 75%, and which was worth about £4. 3s. 4d. per ton, declined to £2. 7s. 6d., a fall of nearly 50%.

Prices of all manure materials, in spite of the enormous quantities used by agriculturists, have on the whole declined. This at a large consumption does not necessarily increase the value of the article, but often enables buyers to purchase at a better price owing to the influence of over production and increased supply.

Principal manures, such as sulphate of ammonia and nitrate of soda, have experienced a considerable drop in values. For nitrate of soda during the past year has been so disastrous for sellers that the price has been obliged to form a syndicate in order to bring matters to a better state of affairs. This combination has resulted in the price of nitrate of soda being raised to the present reasonable ruling, but this figure will be maintained in the hope entertained by the syndicate that its realisation is not a certainty.

The chief feature of the year may be said to be the increased consumption of fertilizing materials by agriculturists, a feature which is increasing more and more, particularly in regard to artificial manures.

TREATMENT OF SEWAGE AT ST. HELENS.

At a recent meeting of the Health Committee of the St. Helens Town Council, Mr. J. Forster gave the following particulars of the proposed method of dealing with the sewage of the town. In September last, the Health Committee gave instructions to the Engineer to prepare plans for sewage works with estimates, and to consider some difficulty as to what sort of outfall works the town would have to provide, and he then asked for the Council to arrive at a proper decision, in order to give complete satisfaction. On the committee there are gentlemen who are conversant with chemicals, and by virtue of their experience I think that the committee have ultimately arrived at a very satisfactory decision. We visited Acton, near London, to see what is called the "Hanson's System," a system which introduces solids in order to precipitate, and then by a method of filtration they have an opening from the sewage into the stream, which is very clear. Then we went to another place at Ealing, which is not far off, where a second system there, which also introduces solids to give an effluent which was very satisfactory to the authorities. There we saw a method of dealing with the solids they had deposited. After the committee went to another side of London altogether, to a place called Leyton, a town about the size of St. Helens, and we saw there a system, which is called Hanson's process. It was whilst at that place that the committee, with their knowledge of the scheme, perhaps, the most applicable to St. Helens, was found by experiments that we have in St. Helens, which, practically the chemicals, in the way of chemical treatment, which bring about exactly the same result as is brought about at Leyton, by the introduction of expensively bought and dealt materials, so that it was considered useless to do work which was not naturally. Subsequently, a local board inquiry was held (J., No. 295, p. 21), and at the wish of the board samples were taken to London. After that the committee—on the suggestion of Mr. Forster, who gave a good deal of consideration to the matter—agreed to experiments on another line, in the way of putting up a large tank, in which they could introduce sewage, to try the extent of precipitation, and find out what sort of effluent they could get from the tank alone. These experiments were carried on over a great number of days, and in every instance we found that the solid matter precipitated with comparative ease, in from four to six hours, and the effluent was, at any rate, one that one was able to see through. The whole scheme has been sent up to the Local Government to await the sanction of the Board.

As regards the outfall there is an arrangement of six precipitating tanks. Six tanks, or rather four of them, are calculated to receive the sewage of St. Helens in 24 hours, and to allow proper precipitation in each one of them. It is intended to keep the sewage from one tank to another until it has stood for four or six hours, whichever may be found to answer the purpose best. Immediately it has stood for the proper time the outlet pipes will be allowed gradually to fall down so as to take surface water, leaving the dirty water at the bottom until an accumulation of mud, and that will be repeated all the way. That mud it is intended to pump out of these tanks into something after the style of filter presses, in order to reduce the liquid of which will run back again into the sewage for

fresh precipitation. That mud can either be burned up along with ashes or spread upon the land. That is practically the whole of the scheme.

The estimate is, in round figures £25,000. It provides for everything that need be done in the way of engines, pumps, and appliances of all descriptions, and I venture to think that it has had sufficient consideration so far as to be adopted by the Council as a general scheme. Mr. Forster suggested that of the two ways of disposing of the sludge he was in favour of burning it, as the manurial value was very small.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the city of London for the week ending February 11th, 1893, was, on the whole, good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed two deficiencies in illuminating power, both against the Gas Light and Coke Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.41	12.82	0.25	Nil.
South Metropolitan Gas Co.	6	16.15	10.98	0.35	Nil.
Commercial Gas Co.	2	apparatus under repair	7.9	0.15	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, during the month ending February 9th, 1893, the proportion of total sulphur has averaged 16.20 grains per 100 cubic feet. The following are the results of tests made at the works, in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Jan., 1893.	Feb., 1893.			Weight.	Volume.
Meadow Lane....	17. 27.	2. 8.	14.54	0.84	48.90	.06
New Wortley	20. 26.	1. 9.	18.27	10.33	40.75	.05
York Street	20. 25.	3. 6.	14.19	2.63	40.75	.05
Average at Works	..	..	16.20	5.34	40.75	.05
Average at East Parade	..	..	15.55	7.97	40.75	.05

During the month the average illuminating power of the gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 18.3; standard batwing, 19.0; Sugg's illuminating power meter, 18.4.

THE ADULTERATION OF CHEESE.

AT the meeting of the Cheshire County Council held recently Colonel Dixon drew attention to the increased sale of cheese adulterated with excessive quantities of water. To protect the public against fraud in this matter, and also to afford protection against the sale of imitation cheese, prepared by the addition of foreign fats during the making of the cheese, he moved the following resolution:—

That the President of the Board of Agriculture be requested to use his influence in getting a bill introduced as a Government measure in the ensuing session of Parliament to compel every person dealing in cheese which contains foreign fat and an excessive percentage of water, or either of them, to brand or durably mark the same with the word "caserine" in red capital letters not less than three quarters of an inch square, and further to compel the registration of every manufactory of such article.

He said he knew that these "caserine" cheeses were sold in Cheshire, but the difficulty was to find what quantity was sold, and also the stuff it was made of. He succeeded in obtaining a sample of it, and sent it to the county analyst. Mr. Carter Bell reported that the cheese at first sight was fair to look at, and might have been taken for an ordinary Cheshire cheese, because it had a rich fatty appearance; but on analysis it was soon found that this unctuous look was due to water in excessive amount. The fat in the adulterated sample was nearly all foreign fat. Without any exaggeration, he could safely say that after the cheese had been standing in a moderately warm place, such as an ordinary room, for a few days, decomposition rapidly set in, the sample becoming so offensive that he would not give it to the beggar at his gates. This quick decay was no doubt due to the excessive amount of water and curd, whereas in ordinary pure dry cheese, fat and curd were about in equal percentages; but in this adulterated sample the curd was 64 to 26 of the fat, and the result was that, instead of a slow ripening, there was a rapid rotting.

About 100,000 boxes, or 5,000,000 lb., of these cheeses arrived every year from America, being sold by wholesale firms at prices ranging from 26s. to 36s. per cwt.

The resolution, seconded by Mr. C. B. Davies, who thought the selling of such stuff was a public fraud, was adopted unanimously.

Legal Intelligence.

SALFORD HUNDRED QUARTER SESSIONS.

THE MERSEY AND IRWELL JOINT COMMITTEE v THE BURY CORPORATION.

(Continued from page 113.)

THE CASE FOR THE DEFENCE.

Mr. Gully, on behalf of the appellants, said this was really a question of law. It was a case to decide whether or not the rights of the Corporation of Bury under the Act of 1846 were done away with. In the first place he would point out that if section 102 of the Act of 1846 was yet in force then there could be no conviction under the Act of 1892. That, in the words of Dr. Pankhurst below, was their charter as regarded sewage. The Act of 1892 on the face of it assumed that a state of things existed in which it was an offence to pour any liquid sewage into a river, without any reference to nuisance. If section 102 of the Act of 1846 was in force in Bury, then the state of things did not exist under which a prosecution could be put in force against Bury or a summons could be taken out against Bury under the Act of 1892. The remedy against Bury was under section 102 of the 1846 Act, and they could not, Bury having the right to discharge sewage into the stream (except there was a condition put that they were to discharge the sewage so, as not to be a nuisance), say, "Oh, you are discharging it under section 102 of the 1846 Act, but it is a nuisance, and therefore we will prosecute you under the Act of 1892." That was not the remedy at all. It was to indict the corporation for a breach of their rights under section 102 of the 1846 Act. That was the legal position as regarded those two Acts, and the question came back as to whether there really was a nuisance or not. More feeble evidence of nuisance had never been given than was given that day. Not one person had been called to say that he had suffered in health or been annoyed in any shape or way. There had only been witnesses to say that "in my opinion" it would be a nuisance or an annoyance. But the question of nuisance or annoyance was absolutely immaterial if section 102 of the 1846 Act was yet in existence, and it was also immaterial if that Act had been abrogated, for the corporation had undoubtedly discharged liquid sewage into the river in contravention of the Act of 1892. He submitted that the question was whether the Act of 1892 repealed the 1846 Act, and that all the matters which his friend had referred to, and all the other Acts which had been spoken of, really threw no light upon the question at all. His friend had referred to the Act of 1872 and quoted the preamble to show that the corporation had adopted the Public Health Act of 1848 to 1863. That might be quite true, but it was not material. His friend also referred to the Public Health Act of 1875, section 17, and the local Act of 1872 was referred to as leading up to the Act of 1875. His friend read the 17th section of the 1875 Act and contended that it was a material one. But that section merely said that nothing in that Act should be construed as authorising a local authority to foul a stream. He (Mr. Gully) would concede that, but what had that got to do with whether the Act of 1846 did authorise Bury to foul the stream? The 1875 Act certainly did not authorise them to foul the stream, but it did not say that the powers already possessed under another Act should be taken away. There was nothing in that section which repealed the Act of 1846, and nothing which repealed the power given the Corporation by that Act. The

Bury Improvement Act of 1885 was also referred to as being in force. His friend relied upon that Act, though he (Mr. Gully) hardly stood how or why, but the matter he referred to as being matter that the corporation had borrowing powers there for a sewage scheme. What had that to do with it?

His Honour (to Mr. Sutton): What section of the Act do you rely upon?

Mr. Sutton: The preamble, several schedules, and the portion of the Act to deal with sewage and sanitary matters.

His Honour (to Mr. Gully): What do you say about this preamble?

Mr. Gully: I hardly know what I am to meet. What do you say, sir? What is the point to which you address my attention? I am not empowered to borrow money for our sewage scheme.

His Honour said the only point was that in the schedule claimed the sanction of the Local Government Board to borrow £11,000. for the purchase of land required for the disposal of the sewage of the borough.

Mr. Sutton pointed out that, in the next schedule, he thought the Corporation Act was defined, and among the Acts named was the Public Health Act, 1875, which said that there should not be any public river—

Mr. Gully: And also the Act of 1846. There was nothing said in the Act of 1875 which said they should not pour sewage into the river, and the Public Health Act had a clause which said nothing in the Act should be taken as repealing provisions in any other Act; or, in other words, there was a general saving clause close of the Public Health Act of all local Acts.

Dr. Pankhurst said he thought the Bench would find that the special mode of dealing with local Acts, if any intention existed to alter them.

His Honour said that if Dr. Pankhurst could show them why the Act of 1846 was a great advantage to them. [Later on in the case the section was read. It was to the effect that the powers under the Act were in addition to the powers conferred by other Acts of Parliament, laws, or customs, and the powers held by these other laws must be exercised as if that Act had not been passed.]

Mr. Gully (continuing) said that his friend had referred to sections 2 and 3 of the Local Government Provisional Order No. 10, by which the Mersey and Irwell Board were constituted. That defined the territory, scope, and action of the board, stating that the watershed of those rivers passing through the counties of Lancashire and Cheshire. Inasmuch as in 1887 the Local Government Act was passed, and by it there had been created a number of boroughs, he supposed it was thought prudent to name those also in the Act. He quite admitted that the powers of the board were in force within the borough of Bury, but they were in force subject to the Act of 1846. It might be asked what was their authority in dealing with matters in their local district; they must look at local rights.

His Honour: Is it not, put shortly, that the meaning of the Act is that the Joint Committee shall enforce the Rivers Pollution Act of 1876?

Mr. Gully said it was so, subject to any local rights not in force. His friend said it was not so, but it was obvious that they were enforcing the Act of 1876 so far as it could be lawfully enforced, and it was begging the question to say that the article enabled the Joint Committee to disregard the Act of 1846. The only question was whether that Act was yet in force.

His Honour said the articles said that the committee was to enforce the Rivers Pollution Act, 1876.

Mr. Gully: But they could not enforce it in such a way as to repeal the Act of 1846.

His Honour: The question is whether this Act of 1876 repeals the section of the Act of 1846.

Mr. Gully: I say none at all.

His Honour: What do you say is the power of the Rivers Pollution Act, 1876, upon the Act of 1846?

Mr. Gully: None at all. After some further arguments it was said there were two articles in the Provisional Order cited in evidence. One of them was the question of the constitution of the Joint Committee, and the other the question of representation showed the district over which the committee were to exercise jurisdiction subject to all unrepealed Acts of Parliament, and other gave the representation. Bury was entitled to be represented not only as regarded manufacturing matters, but to preserve the river under section 102 of the Act of 1846, and for the purpose of the Act.

Mr. Sutton: In that case it was clearly relevant that I might have taken place on the board.

Mr. Gully said he could not see how his friend, by facts of the case, could show what was the construction of an Act of Parliament. And then Bury would also be entitled to protect itself to waters coming down to Bury. There were plenty of reasons why Bury should be represented and yet the Act of 1846 still stand.

His Honour said he thought Mr. Gully could pass from that point. At present the court thought that the article relied upon by Mr. Sutton merely gave the Committee power to enforce the provisions of the Rivers Pollution Act of 1876.

Mr. Gully: Subject to any Act of Parliament that should be unreppealed.

His Honour: Certainly.

Mr. Gully next turned to the consideration of whether the Act of 1836 was repealed or not, and said that as a matter of principle, that if there was special legislation—whether the Act was a public or a private Act—if there was an Act of Parliament giving a special right to an individual, that special right was not to be held to be taken away by general legislation unless when reading the two statutes it was obvious that it must have been so intended and was inconsistent with the meaning of the two Acts of Parliament that anything else should have been intended. That was what he said was the principle upon which they came.

His Honour: No doubt.

Mr. Gully: And I say applying that principle here, the Corporation of Bury has not been deprived of its rights. Dealing with what was special and what was general legislation he said special legislation meant legislation affecting some particular person or locality. General legislation might be general legislation although it affected only a particular locality, as it might be general legislation as regarded the special legislation with which they wanted to compare it. For example, suppose they had an Act giving the right to a particular person, or body of persons, in a particular place, and they had a general Act applying to all England, except to the county of Cornwall, it would not be the less general legislation. They had to look at the nature of the legislation, at the general rights, and then see whether that was not general legislation over the district. What he said was, that the Rivers Pollution Act, 1876, was in itself general legislation. There could be no doubt about that.

His Honour: All over the country.

Mr. Gully: All over the country. The Act of 1892 was of the same class of legislation precisely as the Rivers Pollution Prevention Act, only, inasmuch as the Mersey and Irwell happened to be in that part of England which was perhaps the most thickly covered by manufacturing factories which were likely to pollute the rivers, there was a body created with rather greater powers than were given in the rest of the country. But the nature of the legislation was general; it was applied to a considerable locality, and its nature was general. There was a committee formed, and that body had power to deal with all cases generally arising out of its territory. That was general legislation, and when they said it was repealing special legislation, they had to consider what the nature of the special legislation was, and the general legislation.

(The report of this case will be continued next week.)

Reports of Companies.

THE SANITAS COMPANY, LIMITED.

At a Board meeting, held last week, the directors of this Company resolved to place to the reserve a sum equal to $2\frac{1}{2}$ per cent. on the paid-up capital of the Company, and to recommend the payment of a final dividend of 5 per cent., together with a bonus of 5 per cent., making (with the interim dividend already paid) a total distribution for the year of 15 per cent.

BRUNNER, MOND AND CO.

The half-yearly ordinary general meeting of the shareholders of Messrs. Brunner, Mond & Co., Limited, Winnington, Northwich, was held on Monday last, at the Law Association Rooms, Liverpool. Mr. John T. Brunner, M.P., chairman, presided over a large attendance. The report stated that there was a balance to the credit of profit and loss account on the working of the half-year ended 31st December of £267,092. 16s. 2d., which, with the amount of £76,518. 2s. 8d. brought forward from the previous half-year, made a total of £343,610. 18s. 10d. On the motion of the Chairman, seconded by Mr. H. Coghill, it was resolved that the report and statement of accounts be adopted, and that a dividend be paid to the holders of preference shares at the rate of 7 per cent. per annum on the amount paid up on such shares, and that a dividend be paid to the holders of ordinary shares at the rate of 50 per cent. per annum on the amount paid, free of Income Tax. Mr. Todhunter moved, Mr. Armitage seconded, and it was unanimously resolved that the directors, other than the managing directors, be paid the sum of £500. for their services during the half-year. The retiring directors, Mr. Henry Brunner, Mr. Fargan, and Mr. Galloway, were also re-elected. An extraordinary general meeting was afterwards held, when it was proposed that the articles of association be altered and added to, by which the nominal capital should be increased to £2,000,000. by the creation of new

shares. The Chairman said he thought they would consider they were justified in asking to be empowered to issue up to £2,000,000. when the directors considered it to be for their interest. It was proposed to hold a confirmatory meeting on the 16th of March.

THE SALT UNION, LIMITED.

In their fourth annual report now issued the directors of the Salt Union, Limited, state that the gross tonnage of salt delivered by the Union in 1892 was 1,345,000 tons. The directors regret that the salt trade has not been exempt from the general trade depression of the country, tonnage as well as prices being adversely affected. Further economies have been made in the cost of manufacture, and it is hoped that still more may be effected by steady re-organisation. During the year considerable progress has been made in the Cheshire district in modifying the distributor system, and rendering it applicable to the present condition of the industry. In the Worcestershire district no satisfactory settlement has been possible, and the directors have been compelled to commence an action at law against Mr. Corbett, in order to obtain recognition from him of the rights of the Company in that district. During the year the sum of £2,633. 8s. 7d., expended on new works, has been charged to the general capital account. The amount owing to the Union at December 31 last was £98,236. 16s. 8d., whilst the sum owing to the Union was £147,164. 8s. 7d.; the cash at banker's on current and deposit accounts and in hand being £71,040. 8s. 10d., and bills receivable £16,864. 8s. 11d. The amount standing to the credit of profit and loss account for the sale of salt and brine was £290,351. 8s. 6d. To this has to be added the sum of £94,422. 11s. 10d., representing the profits earned from carriage and other sources, making the total amount £384,774. 0s. 4d. After deducting the cost of maintenance of plant, distributors' commission, agency, and other charges, the profits from all sources amount to £215,919. 6s. 3d., to which should be added the amount brought forward, £3,913. 3s. 4d.—total, £219,832. 9s. 7d. From this sum must be deducted the debenture stock interest paid on July 1, 1892, and 1st January, 1893, £45,000., and the interim dividends to 30th June last, at the rate of 7 per cent. per annum on the preference shares, and 5 per cent. per annum on the ordinary shares, £85,000.—£130,000., leaving £89,832. 9s. 7d. The directors recommend that dividends for the half-year ended 31st December last be paid on and after the 14th day of March, 1893, at the rate of 7 per cent. per annum on the preference shares, which will require £35,000., and at the rate of 5 per cent. per annum on the ordinary shares, which will absorb £50,000.; that the amount spent on boring in Cheshire be written off, £2,015. 12s. 8d.; and that there be carried forward £2,816. 16s. 11d.—total, £89,832. 9s. 7d. The amount invested in securities has been increased to £60,332. 18s. 11d., out of the total reserve fund of £117,500. As a result of the Local Government Board inquiry, held at Northwich on the 10th, 11th, and 12th February, 1892, the Local Government Board introduced into the House of Commons last Session a Provisional Order Confirmation Bill, by which Northwich and Winsford were to be joined in one area, under a Compensation Board. Compensation Boards for the other Cheshire salt districts were not formed. In conjunction with the Local Board and property owners of Winsford, the directors determined to oppose the Bill in question before the Parliamentary Committee, on the ground that its main provisions were contrary to the evidence given before the Local Government Board Inspector. The Bill would have rendered brine pumpers in Winsford (where much salt is made) liable to pay for the subsidence in Northwich, where, as compared with Winsford, the salt trade is small, but pumping for the manufacture of chemicals is extensive. Owing to the general election the Bill was suspended, but it has been re-introduced during the present Session. The boring which was commenced in June, 1890, has not led to any satisfactory results, and the cost has been charged in the balance appropriation account for the year 1892. Mr. E. S. Baring-Gould and Mr. Pascoe St. Leger Grenfell retire by rotation; but, being eligible, offer themselves for re-election. The directors are of opinion that the vacancy caused by Mr. Grigg's retirement should not be filled up at present.

THE NORTH BRITISH WATER GAS SYNDICATE.

A meeting of the dissentient shareholders of this company was held in Glasgow recently.

Mr. Walter Neilson, who was called to the chair, said the concern had been singularly unfortunate from the beginning to the end, and it had been a case of bleeding the shareholders. Where the money had gone to he could not tell. The capital was £301,000. The expenses appeared to be £8,000. Where had all the £200,000. except that £8,000. gone? Mr. Fox had admitted that after three years of spending money in experiments the result was to be deplored. The chairman left it to themselves as sensible men to say was Mr. Fox to come from Leeds to stuff statements down their throats. The shareholders would not have it—at least, he would not. No sensible people

if they had seen they were wrong would try to bleed the shareholders. He asked the shareholders to get every man to oppose the call, and then there would not be the ghost of a chance of Mr. Samson Fox or any of the others succeeding in what they proposed.

Mr. G. F. Allan, who had been acting for the dissentient shareholders, said they had got hundreds of concurrents representing many thousands of shares, and if the 20,000 deferred shares were kept out of the count the dissentient shareholders would have a majority. He had seen the counsel and solicitor of the Notts and Derby Company, and they stated that the parent company had no case against the North British Water-Gas Syndicate; the solicitor was willing to act in the matter for them. (Applause.) They were three times in a better position than the Notts and Derby Company, because the North British Water-Gas Syndicate had tried the patents for three years without effect. He submitted they were creditors, and that the parent company were debtors. They were asked to amalgamate because they were the only company which had assets, namely, £12,000. Even in the works of their chairman the water-gas did not yield a farthing. Then the parent company said that the water-gas had succeeded in foreign countries. Let them name one single place where it had succeeded.

Mr. Bost said he was willing to pay his share of the expenses, but he did not wish to be upon the committee. He was at one in resisting the calls and in recovering as much money as they could.

The Chairman said the parent company had sold them an article they had not got; why, therefore, did they want amalgamation?

A Shareholder: They wish amalgamation to get our £12,000.

Mr. Cairney moved: "That this meeting instructs the agents to oppose a further call, to retain the £12,000. in hand, and to recover the purchase price of the patents already paid for from such parties as counsel may advise are responsible." He maintained that the deferred shares were not entitled to vote. He desired to impress upon everyone the necessity for bringing in concurrents, as if they did so success would be sooner achieved. If they retained the twelve thousand pounds they would get back from four to five shillings a share.

The Chairman said that for future expenses some concurrents would not only pay 6d. per share, but would even pay 10s. per share. (Applause.)

Mr. James Nicol seconded Mr. Cairney's motion, which was then adopted.

Mr. Frith said he would rather run the risk of paying £2. per share than pay 10s. per share for amalgamation.

The Chairman said Mr. Allan's statement was true, so that Mr. Samson Fox and the other directors had not a leg to stand upon.

Mr. William Brechin asked whether, in the event of unsuccessful litigation, was there not a danger of their having eventually to pay £2. per share, instead of ten shillings?

Mr. Allan replied that if they saw it would cost more than sixpence per share they would let the shareholders know. Absolute success could not be promised, but if the Notts and Derby Company could win, they had a better chance of winning.

Several names were added to the present committee, which was given power to add to its number, and the proceedings terminated.

THE SOUTH METROPOLITAN GAS CO.

The ordinary half-yearly general meeting of the South Metropolitan Gas Company was held last week at the Bridge House Hotel, London-bridge, Mr. George Livesey presiding. In moving the adoption of the report, the chairman stated that, after an interval of four years, the directors had the satisfaction of again submitting a satisfactory report—satisfactory in the sense that for the first time for four years they had earned the dividend which they now proposed to pay. There had been an increase of 5·8 per cent. in the quantity of gas sold as compared with the quantity sold in the December half of 1891, which was extremely satisfactory. With the works which they had been carrying out at East Greenwich they were now well in advance of any demands that might be made upon them, for, with an additional expenditure of, perhaps, £25,000. or £30,000., the works at this station would be capable of supplying 1,000 million cubic feet a year. They had recently completed a very large gasholder, and one reason why they had built such large gasholders was that they were able to do so at a much less cost per 1,000 cubic feet capacity than they could build small ones for. They were now some years in advance with their gasholder storage, having an aggregate of 45,000,000 ft., or 130 per cent. of the *maximum* daily make of gas, 100 per cent. being usually considered sufficient. They would be asked for authority to raise £250,000. further capital. Three years ago they took similar powers, but the money had all been expended on productive works. He might state that whereas 12 years ago their capital stood at £5. per ton of coal used in the year, it now stood at about £4. 11s. per ton, notwithstanding that in the interval they had been buying land and building new gasworks, which had necessitated the outlay of a large amount of capital, which was unproductive for a time. He afterwards referred with great satisfaction to the relations now

existing between the company and their *employés*, and stated the latter had invested a considerable amount of money in the C stock, besides having deposited with them nearly £24,000. 3 cent. Their consumers had been offered and had taken up amount of the C stock, thus showing their confidence in the company and in the stability of its business. Although a dividend of 1 cent. nominally was paid on this stock, the return to the holder the issue price was only about 5 per cent. They had been fined for certain impurities in their gas. The Acts of Parliament administered by gentlemen known as the London Referees, who were men of very high scientific attainments, and some of whom had tests which were inconceivably exact. They had, for instance, a test for sulphuretted hydrogen, which would detect one part of noxious compound in 100,000,000 parts of gas. If the gas passed this test the companies were liable to be fined £500. In consequence of the Durham strike, last year, they had had to get varying quality from different places, and the effect of using it had been to upset their purifiers. The chief examiner was a gentleman of very high scientific attainments, but he knew nothing about gas. The whole theory of the restrictions imposed on gas companies was that they were for the purpose of protecting the public. He had been very much struck in reading a passage from the evidence given by Thomas Farrer before the Labour Commission on the 27th ult. remarks of Sir Thomas Farrer applied to public companies, a gentleman stated that, "Whilst it is right and necessary to impose some restrictions on them, yet without great caution and wisdom restrictions are likely to be injurious to the public as well as to the companies. He (the chairman) could unhesitatingly assert that restrictions imposed on gas companies were injurious to the public, as they caused the price of gas in London to be about 2d. per 1,000 feet more than it need be. Encouraged by their very satisfactory increase of business, and with the prospect of obtaining coal at a reasonable price, the directors had taken the earliest opportunity of acting in accordance with their fixed policy of selling gas at the practicable price; and they had therefore given notice of a rise from Lady Day next to 2s. 5d. per 1,000 cubic feet. He hoped before long they would be able to reduce the price again by another 1,000, and he trusted that the day would come when they would be able to supply gas at 2s. per 1,000. The course which they had taken in lowering the price had not met with universal approval among the proprietors, but the step had not been taken without deliberation, and the board were firmly convinced of the wisdom of what they had done. Since the adoption of the sliding scale, the interest of the company and of their customers were identical, and saw no prospect—at all events, in the immediate future—either of an increase in the price or a reduction in their dividend. Captain Heathorn seconded the motion, which was adopted. A resolution was passed authorizing the raising of £250,000. of additional capital for the issue of new ordinary C stock and debenture stock.

Parliamentary Gossipings.

PETITIONS.

PETITIONS have been deposited at the Private Bill Office of the Houses of Parliament, against the Salford Improvement Bill, the Corporations of Manchester and Heywood, the Bury Urban Sanitary Authority, Manchester Ship Canal Company, the Association of Bleachers, and others.

LEAD-POISONING IN FACTORIES.

In the House of Commons last week, Mr. Asquith, in reply to Mr. M'Neill, said deaths from lead-poisoning in factories had for some time engaged his attention, and with the co-operation of the Home Department he had arranged for the institution of an inquiry into a case that had been brought before him by a manufacturer in the industrial and sanitary aspect.

A Bill to amend the Sale of Food and Drugs Act, 1875, and the Margarine Act, 1887, was introduced by Dr. Cameron and read the first time.

CANADIAN COAL.—A sample of coal taken from the seam of the Drummond Colliery has been analysed by a Montreal chemist of repute. The following results were obtained:—

Moisture	1·08
Volatile combustible matter	22·32
Fixed carbon	68·14
Ash	8·46

According to the report which accompanied the analysis of the best specimens of Canadian coal which has been analysed to date.

Official Memoranda.

(From the Board of Trade Journal.)

POLISHING HATS BY ELECTRICITY.

An American electrical company has just constructed a machine for polishing and giving a gloss to the nap of hats. It is a small electric motor, on which the hat to be treated is mounted and fixed, and the axis of the motor gives it a quick rotary motion. It is then sufficient to keep against the hat a band of wool or felt, and in a very short time, owing to the heat caused by the friction, the desired end will be attained.

SALE OF THE GOVERNMENT NITRATE PROPERTIES IN CHILI.

Mr. Lewis Joel, Her Majesty's Chargé d'Affaires at Santiago, in a despatch to the Foreign Office, dated the 5th December, with regard to a proposal to sell the Government nitrate properties in Chili, states: "The Standing Committee on Finance has reported a Bill, providing for the sale of the Government nitrate properties. The sale is not to take place until it shall have been advertised for six months in the *Diario Oficial*, and for three months in London, Berlin, and Paris newspapers. The minimum price must not be less than that paid by the Government, with interest at the rate of four and a half ($4\frac{1}{2}$) per cent. per annum from the date of acquirement to the date of sale. Fifty (50) per cent. of the price realised is to be paid at once, and the remaining moiety in two yearly instalments of twenty-five (25) per cent., with interest at the rate of four and a half ($4\frac{1}{2}$) per cent. per annum.

"The President of the Republic is not allowed to dispose of the proceeds of the sale, except according to a special Bill to be passed for this purpose."

EXPORTS OF SULPHUR FROM SICILY.

Writing from Palermo, the French Consul at that port states that the prices of sulphur in Sicily for some years had increased to such an extent that the French purchasers were induced to send representatives thither for the purpose of examining and reporting upon the question. Last summer, on the contrary, the rates fell considerably. In certain districts the sulphur workings have reduced the miners' wages and strikes have resulted.

Towards the end of 1892, some disturbance was caused in the sulphur trade, as also in the export trade in other articles, because of the general sanitary condition and the obstacles raised by quarantine.

The export of sulphur from Sicily from the 1st January to the 31st October 1892 exceeded by 125,000 cantars (13 cantars=1 ton), that for the corresponding period of 1891.

The countries which received the largest quantities were:—the United States, 67,928,628 kilogrammes (against 81,503,043 kilos. in 1891); France, 62,393,868 kilos. (against 46,382,288); Italy, 34,435,998 kilos. (against 43,903,903); England, 21,105,129 kilos. (against 20,523,620); and Russia, 11,418,587 kilos. (against 12,325,242 kilos.); the total quantity exported for the first 10 months of 1892 being 269,128,218 kilos. as compared with 259,076,941 kilos. in 1891.

It is noticeable that a large diminution is shown in the exports for America, those for other countries having increased to the extent of making up the difference.

THE PROPERTIES OF RUTHENIUM.

According to the *Journal des Mines* ruthenium is one of the rarest, and therefore most expensive of metals; it is also of all the known elements that which presents the most original properties. M. Joly, Professor at the Chemical Laboratory of the Parisian Normal School, has already made known the well-defined compounds of ruthenium, principally those resulting from an association of this element with nitric dioxide, an association which acting as a simple body, unites with chlorine, bromine, iodine, and oxygen.

Pursuing the investigation of this singular metal, the Professor has submitted to the Academy of Sciences several samples of a red colouring substance, resulting from a combination not yet studied (ammoniacal oxychloride of ruthene) giving a dyeing power comparable with that of the richest colouring materials derived from coal-tar, with fuchsine, for example.

One five-millionth of this substance is sufficient for colouring water; it dyes silk directly and the colour thus obtained is fixed. The chemical reactions of this new colouring product are equally interesting.

Acids make it turn to yellow and alkalines bring it back again to red.

Unfortunately the rarity of the metal which enters into the composition of this substance is inimical to its use in industry. It is, in

fact, a scientific curiosity to which great interest lends itself, for here is seen a metal playing the rôle of carbon in a substance which has all the properties of an organic material.

CUSTOMS TARIFF OF NEW SOUTH WALES.

The following is an abstract of the statement of the rates of duty now levied in New South Wales on articles of interest to our readers:—

Articles.	Rates of duty now leviable.	
		s. d.
Gelatine, glue, and size	per lb.	0 1
Wax and stearine	"	0 1
Glucose—liquid	"	3 4
"—solid	"	5 0
Oils, except raw or boiled linseed, sperm and black whale, palm, and cocoanut	per gallon	0 6
Paints and colours (dry)	per ton	30 0
Spirit varnishes	per gallon	2 0
Varnishes (other than spirit)	"	1 0
Naphtha and gasoline	"	0 6
Cement and hydraulic lime	per barrel	2 0
Acetic acid	per gallon	2 6
Sulphuric do.	per cwt.	2 6
Salt	per ton	20 0
Soda Crystals	"	40 0
Soap	per cwt.	3 0
Whiting and chalk	per ton	10 0

The following is abstracted from the list of exemptions:—

Antifriction Metal	India rubber (all sorts)
Asbestos packing	Ammonium nitrate
Bismuth ore	Rock salt
Bluestone	Arsenic
Caustic soda	Borax
" potash	Cream of tartar
Chrome ore and metal	Iodine
Cobalt ore	Litharge
Copperas	Manganese
Cotton waste	Magnesia
Dyeware and dyes	Paraffin wax
Kauri gum	Soda carbonate
Guano and bone dust	" bicarbonate
Pitch	Tartaric acid
Quicksilver	Ultramarine
Resin	Zinc sulphate
Soda Ash	Zinc oxide
Sulphur	Gums
Tallow	Potassium chlorate
Tar	Camphor
Turpentine	Shellac
Chloro-dinitro-benzol	Bitumen

THE BAKU OIL SYNDICATE.

Seven of the largest naphtha-producing firms at Baku, the combined annual output of which amounts to over 44 million pouds (709,677 tons) have recently agreed to form a syndicate, at the head of which the well-known firm of Messrs. Nobel Brothers is to be placed and empowered to sell kerosene on commission both in Russia and abroad, at a price to be regulated by a committee to be formed of the representatives of those firms.

The number of votes are to be distributed among the contracting parties in proportion to the yearly output of each firm, every producer of half a million of pouds (8,064 tons) being entitled to one vote, but in order not to give Messrs. Nobel Brothers, whose works alone yield 17 million pouds (274,193 tons) of oil per annum, too great an advantage over the other producers, the number of votes of that firm are to be limited to 30, instead of the 34, which, under the terms of the agreement, it would have the right to claim.

Messrs. Nobel Brothers are to receive a commission of $1\frac{1}{2}$ copecks per poud for the kerosene they sell in Russia, and $\frac{1}{2}$ copeck per poud for all sales effected abroad, on condition, however, that they bear all expenses excepting brokerage charges.

Every member of the syndicate is to have the right to independently sell petroleum in Russia and abroad, but not otherwise than with the strict understanding that the oil for this purpose is acquired from Messrs. Nobel Brothers.

The representatives of the contracting parties have to now pay up a sum of Rs. 10,000 (£1,000.) for every million pouds (16,129 tons) of oil they produce. In this manner it is expected that a capital of Rs. 440,000 (£44,000.) will be formed and employed in encouraging smaller producers to join the syndicate in erecting tanks and meeting

the other requirements of the society. This sum will also serve as a guarantee for the stability of the syndicate.

On the consolidation of its position the syndicate hopes to enter into an agreement with the Standard Oil Company of the United States for the apportionment of the European markets between them.

Correspondence.

* * * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

J. C. AND SONS.—We are sorry to hear of the restriction, and trust you will succeed in altering the decision.
C. T. K.—Letter to hand safely for which we are much obliged, and trust you will favour us in like manner in the future.
H. Z. (Berlin)—Yes.
C. D. E. (Italy)—It has been forwarded.
C. A. P. R.—We are pleased to have been able to oblige you.
O. R., A. T., AND C. H.—Thanks for your letters, which shall receive attention in due course.
R. H.—It is rather early to ask such a question. In the beginning of August most probably.
INQUIRER.—We cannot advise you on the point; you must use your own judgment. There is ample information in our columns on which to base the same.

Trade Notes.

THE BLACK CURRANT MITE.—The Board of Agriculture has just issued a circular touching the black currant mite (*Phytoptus vitis*) which has recently appeared in many parts of the country, especially in Kent. A full description of this destructive insect is given, together with its life history. The circular concludes with minute directions as to the best mode of dealing with infected bushes.

PETROLEUM SOAP.—A liquid soap containing petroleum can, according to Messrs. F. G. and W. C. Haigh, be prepared from the following ingredients:—20 parts, by weight, of water, 5 of paraffin, 2 of resin, 4 of vegetable oil, and 20 of caustic potash. The vegetable fat or oil is first saponified in the ordinary way, and then the paraffin or other mineral oil is added. The soap is said to possess great cleansing properties.

ANTI-VERMIN PAPER.—A paper for wrapping up furs, feathers, coins, and articles made of hair to protect them from insects and damp may be prepared, according to J. Jouquier, sen., by treating paper with a mixture of carbolic acid, pitch and oil. A mixture of 33 per cent. of pitch, heavy tar oil, and carbolic acid respectively, is heated in a suitable vessel and the paper passed through the bath till well impregnated with the mixture. It is then passed between drying cylinders, after which it is ready for use.

A NEW SUBSTITUTE FOR SUGAR.—At a recent meeting at Hanover, of the Brunswick-Hanoverian Branch Union for the manufacture of beetroot-sugar, some interesting remarks were made on a new substance called "Valzin," which is expected to entirely supplant saccharine, and which may create a not unimportant competition with the sugar industry generally. This new substance was discovered by the Berlin chemist Blau, and is now being manufactured by Riedel, of Berlin, according to a patented process. It is about 200 times sweeter than sugar, but does not possess several unpleasant qualities which saccharine has.

WOMEN CHEMISTS.—In Austria, and especially in Bohemia, there is a movement for admitting women to the career of the chemist—that is, letting girls study chemistry at the public schools, and if they pass the examination, appointing them as assistants. But the apothecaries of the empire will have none of them, and are about to protest vehemently. There are to be apothecaries' meetings in Prague and Vienna, in which petitions to the Governments will be adopted against allowing the competition of women in a business at present pursued only by males.

AN OXIDISING AGENT FOR SEWAGE TREATMENT.—A patent precipitant and oxidant to be used in the treatment of sewage and other impure waters, may be made by mixing a solution of protochloride or sulphate of iron with vitriol or hydrochloric acid and manganese dioxide or hydrated ferric oxide; ground bauxite may also be added to the mixture. The sewage may be oxidised by passing it through a layer of manganese dioxide or by mixing the dioxide with the sewage in a revolving chamber. Both the process and precipitating agent are patented.

THE SOAP AND CANDLE INDUSTRY OF ROUMANIA.—There are two works of importance at Galatz which manufacture soap and candles. The larger makes 700,000 kilog. of soap and 350,000 kilog. of candles per annum; the other works turns out 600,000 kilog. of soap and

500,000 kilog. of candles. The raw materials are obtained following countries:—Stearine from Holland and Belgium, tallow from England, France and Anvers. The manufactures are chiefly exported into Bulgaria and Servia. The exports ever, on the decrease, owing to hostile tariffs, and also to the want of a rival works at Roustchouk.

THE ST. HELENS WATER SOFTENING WORKS.—These were now nearly completed. In accordance with the instruction of mittee, samples of water had been taken at the five pumping and tested for hardness by Dr. Robertson. The results follows:—Whiston: Permanent hardness, 7·89; temporary none; total hardness, 7·89. Eccleston Hill: Permanent, 12·20; temporary, 4·22; total, 16·74. Collins Green: Permanent, 10·20; temporary, 15·4; total, 26·13. Knowsley: Permanent, 12·12; temporary, 12·52; total, 24·64. Kirkby: Permanent, 12·20; temporary, 19·11.

CARRIAGE OF PETROLEUM.—The Suez Canal Company have received information that in the suit brought against Messrs J. Chambers and Co., of Liverpool, E. and E. Arbil Temperley Steam Shipping Company, of London, and Messrs. and Mawson, of Newcastle, contesting the right of the canal to allow petroleum tank vessels to pass through the canal, the have been non-suited, and condemned in damages by the tribunal at Alexandria. The court held that the company had right to frame such regulations as they considered advisable the consent of the Powers or the Egyptian Government, and regulations relating to petroleum in bulk were perfectly valid wisely conceived.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is in a most unsatisfactory state, and have fallen since our last report. Benzol is now ranging from 1s. 7d. for 90's, while 50/90's cannot be said to have a greater than 1s. 5d. Crude carbolic remains about the same, while anthracene are also unchanged. Pitch remains as quoted in report.

The sulphate of ammonia market is very brisk, and coal business is being done at enhanced prices. The product quoted to-day at £10. 15s. per ton at all ports.

REPORT ON MANURE MATERIAL.

The market has been quieter during the present week, though for both phosphatic and ammonical material have been well made all round.

For 75/80% Florida phosphate rock 8d. per unit is nearest though it is understood that a shade less has been accepted for summer shipment to United Kingdom. Peace River rock dried, is quoted 7d. per unit, and South Carolina 6½d., but hear of any important business at these prices.

There are sellers of River Plate cargoes of bones at £4 2s. or Continent, but no business reported. Crushed Kurrah offer for shipment at £4. 2s. 6d., which price buyers do inclined to pay. East Indian bone meal is somewhat dear £4. 3s. 9d. having been paid for arrived parcels. £4. 3s. 9d. asked for January and February steamer shipment.

The excitement in the nitrate market has somewhat passed but highest prices reached are closing quotations. On spot lowest for ordinary quality and 1cs. 1½d. to 10s. 3d. for good 10s. has been freely paid for cargoes arrived or due, and 10 1½d., according to size and test, may be quoted as nearest value position. January sailings are worth 9s. 9d. down to 9s. 3d., to sailing date.

There is still good demand for other nitrogenous material test, and up to 11s. 9d. has been paid for finely ground dried in double bags, f.o.b. Liverpool. Unground River Plate block test would fetch 9s. 6d. per unit, ex quay, in single bags.

MISCELLANEOUS CHEMICAL MARK

The market still continues active in bleaching powder, and amount of business has been concluded for export at the price mentioned last week. For home trade requirements has advanced, and is now nominally £8. nett per ton f.o.r. delivery; £7. 5s. nett would probably be still accepted contracts over the year. The position of chlorate of potash a

still very strong, and prices nominally are 9d. to 10d. per lb. respectively. In alkali there are no changes to report, quotations for caustic soda being as for some time past, viz.:—77% f.o.b. Tyne, £11.; f.o.b. Liverpool, 74%, £10 10s.; 70%, £9 10s.; 60%, £8 10s.; cream, 50%, £8 5s., 10 ton lots and upwards. Soda ash is from 1¼d. to 1¾d. per degree for various grades of Leblanc makes f.o.b. Liverpool. For ammonia alkali, 58%, 1¼d. f.o.b. and 1½d. per degree in bags at makers' works. Soda crystals are, generally, somewhat slow of sale, and the reduced price has not led to any material improvement in this respect. For recovered sulphur £4 2s. 6d. to £4 5s. per ton at makers' works is nearest value. Brown acetate of lime continues steady in price at £6. per ton, usual points of delivery, but demand is quiet. Grey, £10 15s. per ton. Acetate of soda and white sugar of lead are in moderate request, and without change in price. Potash, caustic and carbonate, are in good demand, and there is no alteration to report in the position. In sulphate of copper there is nothing new to report, the price remaining at £16 5s. to £16 10s. f.o.b. White powdered arsenic continues scarce, and firm in price at £13 10s. nett, usual points. Carbolic acid crystals steady at 7¼d. to 7½d. for 39/40°, and liquid carboic acids are 1s. 9d. to 1s. 10d. per gallon, there being still a good demand for everything in this line. Generally in chemicals the reports indicate an unsatisfactory state of trade in the manufacturing centres.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron active. Scotch warrants closed at 41s. 8d. cash. Middlesbrough 34s. 6d. cash, and Hematite 45s. 3d. cash. Copper firmer: Chili bars, G.O.B.'s and G.M.B.'s closed at £45 7s. 6d. to £45 10s. cash, and £45 17s. 6d. three months. Tin steady. Straits closed at £91 17s. 6d. to £92 cash, and £92 7s. 6d. to £92 10s. three months. Australian, £92 7s. 6d. cash. English ingots, £95. Lead, dull; Spanish, £9 5s. to £9 7s. 6d. English £9 10s. to £9 12s. 6d. Silesian spelter: Ordinary, £17 to £17 2s. 6d. Nickel, 1s. 9d. Antimony, £41. Quicksilver: First hands, £6 7s. 6d., second hands, £6 7s. Copper shares dull: Cape, 1½ to 1¾. Copiapo, 2¼ to 2½. Libiola 3¾ to 3¾. Mason and Barry, 2¼ to 2½; Rio Tinto, 15½ to 15¾; Tharsis, 4¾ to 4¾; Nimaqua, 1 to 1¼; Pannicillo, ½ to ¾.

WOLVERHAMPTON, WEDNESDAY.—The end of the "corner" in Scotch pig iron was welcomed to-day as likely to have a good effect upon trade. Pig iron sales were better, but prices keep low. Derbyshire forge pigs, 42s. 6d. to 45s.; Northampton, 41s. to 43s.; Lincoln, 46s. 6d. to 47s. Manufactured iron somewhat more active, resulting from some good engineering contracts having just been secured. Sheets, singles, £6 15s.; plates, £7 to £8; best bars, £7 10s.; common, £5 12s. 6d.

GLASGOW, WEDNESDAY.—Market idle and flat. Scotch closes with buyers at 41s. 6d. cash; sellers ask 43s. 6d. Middlesbrough closes with buyers at 34s. 6d. cash; sellers ask 34s. 7½d. Hematite closes with buyers at 45s. 3d. cash; sellers ask 45s. 6d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues as firm as ever and has been selling at £32 10s. for Lagos to arrive, Accra £32, both transit. There is but little offering on spot. Olive is at last improved, and is receiving a good deal of attention by speculators and buyers, prices range from £35 10s. to £40. per tun, according to quality. Linseed: Liverpool refined is in good demand, and early in the week prices advanced. To-day's market is steady at 22s. 9d. to 23s. per cwt. in export casks. Cottonseed is steady, but the demand has declined slightly, and the price is now 27s. 9d. per cwt. Castor oil is firm, generally, with considerable business doing. Good seconds Calcutta is firm at 2¼d. to 2½d. First pressure French is offered in quantity at 2¼d., small lots 3d. Tallow is in strong demand, but owing to total lack of supplies prices are nominal. Resin: Common is firm at 4s. per cwt.; other grades in fairly good demand. Spirits of turpentine continue at 25s. 6d., this price being fully maintained, but business passing is small. Petroleum remains unaltered at last week's quotations.

COLOURS.—Steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

The market has ruled steady during the week without any material alteration. Manganese: Arrivals are nil; prices unaltered. Borate, 7d. per lb.; sulphate, £21 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12 10s., steady. Magnesite (raw lump) quiet; raw ground £6 10s., and calcined £12 10s. Bauxite (Irish Hill brand) is doing a steady business at full figures; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals continue small, and prices firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland quiet. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5 10s. to £6.; smalls, £5. to £5 10s. Fullers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal continue in strong demand, and prices are firm. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet. Bleaching powder is £8 5s. per ton, soft-woods. Soda crystals vary from £2 5s. to £2 12s. 6d., according to destination. Caustic soda is still dull, £11. per ton for high strength, 76/77%; £9 10s. per ton for 70%. Sulphur, £4 3s. 9d. to £4 5s. per ton.

Bleaching powder, softs, £8 5s. per ton nett; hards, £8 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9 10s. per ton; recovered sulphur, 2 cwt. bags, £4 5s. per ton; soda ash, 48%, £4 17s. per ton, 52%, £5 5s. per ton, 56%, £5 13s. per ton; alkali, 36%, £5 per ton; white alkali, 48%, £6 per ton, 50%, £6 5s. per ton, 52%, £7 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3 17s. 6d. per ton, 140° Tw., £4 5s. per ton; soda crystals, in casks, £2 12s. 6d. per ton gross weight, in 2 cwt. bags, £2 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4 2s. 6d. per ton; blanc fixe, £7 10s. per ton; chloride of barium, £7 10s. per ton; carbonate of alumina, £28 15s. per ton net; aluminates of soda, £33 15s. per ton net; in 5 ton lots, £28 10s.; hydrate of barium, £10. per ton net.

South Durham salt is now quoted at 9s. 1d. per ton, f.o.b. Tees.

Coals: Market dull, with a poor demand. Best Northumbrian, 8s. 6d. to 9s. per ton, f.o.b.; second-class steam, 3s. to 3s. 3d. per ton, f.o.b.; gas coals, 6s. 6d. per ton; manufacturing and bunker qualities flat, the demand being very low and prices weak; best Durham coke, 14s. per ton, f.o.b.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

About the only active feature of the general market is the renewed advance of bleaching powder and chlorate of potash, due to fears of another cholera year on the Continent. Makers are fully booked far in advance. With these exceptions the alkali market is sluggish, and prices have a tendency downwards, although still nominally unbroken.

Soda ash and caustic soda are both very dull.

The Scotch market for sulphate of ammonia has been unwontedly animated, partly owing to the rise in nitrate of soda, and partly, it is supposed, because of some cornering on the market. Towards the close of the week £10 12s. 6d. was certainly done, and there have

been reports since of £10. 15s. having been got, but this is not thoroughly substantiated. At any rate the article at the moment is decidedly strong.

Mineral oils and paraffins still continue to show large deliveries, and at least one chief maker is somewhat in arrears with his burning oil engagements. Scale and wax are well called for at the reduced prices; one report had it that there was a slight rise in price, but there has been no rise as yet. Heavy oils are still firm; but 865° gravity, used chiefly for the oil gas manufacture, will soon fall off now, and is likely to drop in price.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; saltcake, 28s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 9d., less 5% Liverpool; nitrate of soda, 9s. 10½d. to 10s.; sulphate of ammonia, £10. 12s. 6d. to £10. 15s. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¼d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5¼d. a gallon; paraffin oil (burning) 4¾d. to 5½d. at works, according to quality, for Scotch buyers (English sales about ½d. lower); ditto (lubricating), 865°, £3. 10s., to £3. 15s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 6,345 bags.

New Companies.

New Cyanide Gold Recovery Co., Ltd.—CAPITAL £5,000. in shares of £1. each. This company has been formed to purchase certain patents dealing with the recovery of precious metals and to explore and mine in any lands for this purpose.

Gilfton Chemical Co., Ltd.—CAPITAL £2,000. in £1. shares. The object of this company is to manufacture and deal in oils, greases, glycerine, soap, gum, varnish, turpentine, colours, paints and pigments, and other chemical substances.

Chrysalis Compounds Co., Ltd.—CAPITAL £10,000. in shares of £1. each. This company has been formed to carry on the business of manufacturers of "chrysalis compounds" and also to trade either as principals or agents, as manufacturers of chemicals, soaps, drysalts. The subscribers to the memorandum of association are:—F. J. Kingston, Herne Hill, S.E., stockbroker; C. T. Chevallier, 5, Eldon-street, E.C., stockbroker; E. H. Symons, 20 Wormwood-street, E.C., clerk; F. Flower, Peckham, no occupation; C. J. Bruzand, 5, Throgmorton Avenue, E.C., clerk; A. Endeam, South Tottenham, clerk; T. Thompson, Throgmorton-street, E.C., sharedealer.

Gas Desulphurisation Co.—CAPITAL £15,100. in shares of £10. each. The object of this company is to manufacture hydrated oxides of manganese known as Weldon Mud and to use the same for the desulphurisation of gaseous products in certain patents related with this subject. The subscribers to the memorandum of association are:—W. Caudery, 1, Fenchurch Avenue, E.C., merchant; C. Wightman, 1, Fenchurch Avenue, E.C., merchant; J. J. Hood, 21, Shepherd's Bush-road, W., chemist; A. G. Salamon, 1, Fenchurch Avenue, E.C., chemist; J. E. Wilson, Birmingham, manufacturer; R. C. Stoneham, Cranham, solicitor's clerk; R. L. Jane, 1, Fenchurch Avenue, E.C., merchant.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

D. PLATT, W. BOULTON, T. EDGE, and G. HOLLINS, under the style of the Harpfield Tiley Co., Harpfield, near Newcastle-under-Lyme, brick and tile manufacturers.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

POTTER, ELISHA GEORGE, Nethergate, Norfolk, farmer and manure manufacturer.

Adjudication.

POTTER, ELISHA GEORGE, Nethergate, Norfolk, farmer and manure manufacturer.

The Patent List.

This list is compiled from Official sources in the Mechanical Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT

- Diaphragm for Electrolytic Cells. C. N. Waite. 2,586. February 6.
Anti-Friction Bearings. J. Rettie. 2,589. February 6.
Solid Illuminant. T. S. K. Hawhurst. 2,590. February 6.
Bleaching Raw Starch, Gum, etc., with Chlorine and Ozone. Bros. and Co. 2,597. February 6.
Electro-Deposition of Metals upon Aluminium. C. D. Abel. February 6.
New Azo Dyes. J. Y. Johnson. 2,614. February 6.
Regenerative Furnaces. R. Dietrich. 2,665. February 7.
Improvements in the Refining of Petroleum. A. L. Elfen. 2,682.
Derivatives of Hydroxy Anthraquinones. H. E. Newton. 2,695.
Improvements in the Manufacture of Whiting. H. C. Higgins. February 7.
Manufacture of Salts of Aluminium. J. L. Kessley. 2,710. February 7.
Manufacture of Gas and Apparatus therefor. J. Askins. 2,716. February 7.
Improvements in Oxyhydrogen Burners. T. P. Watson and W. H. 2,727. February 7.
Fuel Economising Apparatus. R. Harrison and H. T. Humphreys. February 8.
New Product from Onions. W. Hutchings. 2,783. February 8.
Improvements in the Production of Water Gas. F. Fanta. February 8.
Apparatus and Method for Purifying Water. A. T. Walker. February 8.
Improvements in the Manufacture of Varnishes and Paints. Smith. 2,823. February 8.
Apparatus for Recovering and Concentrating Waste and Sulphuric Acid, and for Recovering Acids in Admixture therewith. I. Levinstein. 2,835. February 9.
Imitation Vellum and Leather. A. W. Titford. 2,837. February 9.
Improvements in the Purification and Utilisation of Sewage Gas Producers. J. Turner. 2,840. February 9.
Improvements in Vertical Settling Tanks for Sewage Treatment. W. Ives and C. T. L. Bristow. 2,844. February 9.
Manufacture of Alcohols, Oils, Greases, etc. N. Iseli. 2,856. February 9.
Apparatus for Vapourising and Burning Mineral Oil. B. Grosch. February 9.
Smoke Consuming Apparatus. T. Lester. 2,942. February 10.
Manufacture of a New Amidonaphtholdisulpho Acid. C. D. Abel. February 10.
Retort Lid Fastenings. D. Terrace. 2,985. February 10.
Improved Sheep Dip. A. Robertson. 2,990. February 10.
Improvements in Varnishes. A. M. Dumoulin. 3,034. February 11.
Apparatus for Filtering and Disinfecting Water. H. W. F. Krohn. February 11.
Improvements in the Manufacture of Cement. W. Webster. February 11.
Processes for Roasting Waste Dust of Copper and other Ores. Vattier. 3,111. February 11.
Improvements in Apparatus for the Manufacture of White Lead. Walton. 3,116. February 11.

GERMAN PATENTS for week ending FEBRUARY 18th

Specially abstracted by Dr. H. Zerener, civil engineer, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to answer queries from subscribers to the Journal gratis.

- 8 B. 13,496. Bleaching Cotton Yarns in the Cop or Bobbin. and H. Karrer, Reichenberg i/Böhmen.
8 G. 7,799. Apparatus for Bleaching, etc., Textile Fabrics. Charlottenburg.
12 H. 12,846. Preparation of Mono and Bicarbonic Acids by fo H₂O₂. Haarmann and Reimer, Holzminden.
22 C. 3,555. Azo Dyes of Amidonaphtholulphuric Acid. L. Frankfurt a/M.
22 D. 5,494. Basic Dyes from Gallocyanine. L. Durand, Huguens Hünigen Elsass.
22 L. 7,312. Blue Basic Dyes of Nitrosodialkyl-μ-Amido-P-Cres Diamines of the Aromatic Series. A. Leonhardt and Co., Müll.
39 H. 12,935. Imitation Amber. P. Haller, Erlangen.
40 S. 6,802. Roasting Zinc Blende. Dr. J. Sachsse, Berlin, N.
23 T. 3,315. Cleaning Waste Oil. O. Christian Thomassen, Christiania.
80 B. 13,919. Manufacture of Glass and Clay Ware from Silica. Alkaline Earths and Metals. Dr. Julius Bittel, Colln-Elbe.
53 R. 7,564. Apparatus for Sterilising Fluids, by method of patent No. 53,829. R. Henneberg, Berlin, S.
62 L. 7,415. Purifying Salt. A. L. Lawton, Rochester, New York.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending February 11th.

Acid—
nd, 70 pkgs. Carey & Sons

e, 210 c. 100 pkgs. Arnati & Harrison

nium—
im, £78 Major & Field

nia (Liquid)—
nd, 17 pkgs. Comp. Mar. Belge

tos—
£272 Brit. Asbestos Co.

n Chloride—
nd, 42 pkgs. Petri Bros.

es—
any, 46 cks. Tough & Henderson

im, 23 Magee, Taylor, & Co.

any, 95 W. Harrison & Co.

any, 29 "P. Jantzen

any, 23 S. Ward & Co.

chouc—
bar, 104 c. S. Figgis & Co.

any, 12 L. & I. D. Jt. Co.

rica, 28 Wallace Bros.

bar, 17 L. & I. D. Jt. Co.

gascar, 10 Lewis & Peat

any, 24 Langstaff & Co.

any, 45 Procter Bros.

any, 3 Brookes & Green

any, 74 Clarke & Smith

any, 6 Patry & Pasteur

any, 108 Isaac & Samuel

any, 20 Prop. Bull Wf.

Oil—
10 cs. A. F. White & Co.

any, 10 Fellows, Morton, & Co.

any, 10 Hodgkinson & Co.

any, 28 brls. Fuerst Bros.

any, 15 Stebbing & Co.

any, 10 A. Laming & Co.

Potash—
any, 11 pkgs. Spies Bros. & Co.

any, 23 c. C. Lamb & Co.

als (otherwise undrescribed)
any, 2 pkgs. H. Trengrouse

any, 6 L. & I. D. Jt. Co.

any, 118 T. H. Lee

any, 94 A. & M. Zimmermann

any, 1 R. W. Greeff & Co.

any, 20 cks. "H. Boyce

any, 8 Hughes, Chemery, & Co.

any, 12 Phillips & Graves

any, 5 Domeier & Co.

any, 4 "H. Boyce

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Boric Acid—
Leghorn, 12 cks. Pickford & Co.
" 10

Borate—
San Francisco, 1,015 sks.

Borate of Lime—
Antofagasta, 1,403 bgs. D. Schiattiro
" 3,675

Borax—
Valparaiso, 523 bgs.

Castor Oil—
Marseilles, 12 brls. J. Mack & Son
" 235 5 cs.
Genoa, 10 Clavest Bros.
" 15 Evans, Sons, & Co.

Chemicals (otherwise undescribed)
Rouen, 55 cks. Co-op. W'sale Soc.

Colours—
In transit, 75 cks.
Antwerp, 10 cs. J. T. Fletcher & Co.

Cottonseed Oil—
New York, 10 brls.

Cream of Tartar—
Bordeaux, 3 cks.

Dextrine—
Hamburg, 1 hg.

Dried Blood—
Ghent, 20 cs. J. T. Fletcher & Co.

Dyestuffs—
Algarroballa
Valparaiso, 52 bgs. A. Barrios
" 500 A. W. Read

Argols
Bordeaux, 50 cks.
Oporto, 11 German Bk. of London
Leghorn, 2

Divi Divi
Hamburg, 264 bxs.

Extracts
New York, 7 brls. F. Ree
" 10 25 bxs.
Bordeaux, 50 cks.
Baltimore, 25
Nantes, 565 The Bark Extract Co.

Fustic
Jamaica, 221½ t. B. Hall & Co.

Orchella
Lisbon, 4 bls. 21 bgs. Edwards Bros.

Saffron
Valencia, 4 cs. Inman & Int. S. S. Co., Ltd.

Valonia
Alexandretta, 2 bgs. Jivan, Teckian, & Co.
" 39½

Farina—
Antwerp, 24 cs. J. T. Fletcher & Co.

Glucose—
New York, 625 brls.
Rouen, 10 cks. Co-op. W'sale Soc.
Hamburg, 50
Baltimore, 500 brls.

Guano—
Rio Grande do Sul, 205 t. J. Gordon & Co.

Iodine—
Valparaiso, 21 brls. A. Gibbs & Sons
" 18

Limestone—
Antwerp, 1 cs. J. T. Fletcher & Co.
" 1 1 crt. 1 frme.

Manganese—
Guayanac, quantity.
Toloralillo, 776 t. Huth & Co.
Poti, 3,300
Bordeaux, 7 hds.

Nickel Oxide—
New York, 25 cks.

Nitrate—
Iquique, 913 bgs. Bh. & F. Marine Insc. Co.

Ochre—
Rouen, 88 cks. Co-op. W'sale Soc.

Paint—
Hamburg, 1 tx.
Boston, 47 cs.

Paraffin Scale—
Philadelphia, 92 brls.
New York, 1,115 Standard Oil Co.
" 130 H. Hill & Sons

Phosphate—
Ghent, 500 bgs.
St. Valery S. S., 245 t.

Potash—
Rouen, 92 cks. Co-op. W'sale Soc.

Potassium Carbonate—
Hamburg, 4 cs.

Pyrites—
Huelva, 2,966 t. Matheson & Co.
" 1,702 Tennants & Co.

Quicksilver—
Gijon, 134 flks. A. Ruffer & Bro.

Rosin—
Hamburg, 5 cs.
Wilmington, 2,648 brls.
Savannah, 3,800
Baltimore, 979

Salt—
New York, 2 bgs.

Saltpetre—
Hamburg, 75 brls. 4 cks. 50 kgs.

Silver Sulphate—
Colon, 6 cs. S. Hudson

Soap—
Alexandretta, 1 hg.
Philadelphia, 600 bxs. 63 crts.
Marseilles, 2 cs.
Leghorn, 500 Weaver & Sterry
Naples, 72 A. Auverney & Co.

Soapstone—
Genoa, 508 bgs.

Sodium Acetate—
Rouen, 4 cks. Co-op. W'sale Soc.

Sulphur—
Huelva, 1,470 t. Matheson & Co.
Catania, 67 brls. 160 bgs.

Talc—
Genoa, 40 bgs.

Tallow—
San Francisco, 174 brls.
Baltimore, 100 tcs.

Tartar—
Bordeaux, 8 cks.
Naples, 10

Tartaric Acid—
Messina, 12 cks.

Turpentine—
Wilmington, 400 brls.*

Ultramarine—
Hamburg, 2 cs. 26 cks.

Verdigris—
Bordeaux, 2 cks.

Waste Salt—
Hamburg, 102 bgs.

Wood Spirit—
Hamburg, 19 cks.

Zinc Oxide—
New York, 100 brls.
Antwerp, 60 J. T. Fletcher & Co.
" 60

HULL.

Week ending February 11th.

Acetate of Lime—
New York, 478 bgs. Wilson, Sons & Co., Ltd.

Alkali—
Flushing, 6 cks. Wilson, Sons & Co., Ltd.

Arachide Oil—
Rotterdam, 25 cks. Hutchinson & Son

Asbestos—
Flushing, 7 cs. 3 bls. Wilson, Sons & Co., Ltd.

Barytes—
Antwerp, 11 cks. 50 bgs. Bailey & Leetham

Bremen, 86

Bone Meal—
Kurrachee, 1,500 bgs.
Bombay, 2,052

Caoutchouc—
Hamburg, 12 cs. C. M. Lofthouse & Co.

Castor Oil—
Bergen, 6 cs. Wilson, Sons & Co., Ltd.

Chemicals (otherwise undescribed)
Hamburg, 6 cs. Wilson, Sons & Co.
Rotterdam, 2 cks. G. Lawson & Sons

Hamburg, 5 pks. Veltmann & Co.
Bremen, 5 cs. W. & C. L. Ringrose
Amsterdam, 3 cks.

Antwerp, 6 pks. Wilson, Sons & Co., Ltd.

Colours—

Rotterdam, 1 cs. 10 cks. G. Lawson & Sons

Antwerp, 6 cks. Bailey & Leetham
Rotterdam, 67 pks.

Flushing, 69 cks. 50 cs 1 pkge. Wilson, Sons & Co., Ltd.

Rotterdam, 21 2 Hutchinson & Son

" 51 pks. W. & C. L. Ringrose

Antwerp, 212 bgs. Wilson, Sons & Co., Ltd.

Cottonseed Oil—
Rotterdam, 200 brls. Hutchinson & Son

Dextrine—
Hamburg, 1 hg.
" 107 bgs. Wilson, Sons & Co., Ltd.

Dyestuffs—
Alizarine
Rotterdam, 3 cks.

Flushing, 63 5 cs. Wilson, Sons & Co., Ltd.

Rotterdam, 38 pks. W. & C. L. Ringrose

Indigo
Amsterdam, 4 cks. W. & C. L. Ringrose

Kurrachee, 228 pks. Wilson, Sons & Co., Ltd.

Myrabolams
Bombay, 3,928 bgs.

Sumac
Palermo, 300 bgs. Wilson, Sons & Co., Ltd.

" 220 "

Farina—
Hamburg, 100 bgs. Wilson, Sons & Co., Ltd.

Ghent, 160 bxs.
Harlingen, 159 bgs.
Hamburg, 100

Glucose—
Hamburg, 10 cks. Wilson, Sons & Co., Ltd.

New York, 300 brls.
Rotterdam, 50 bgs. Hutchinson & Son

" 50 W. & C. L. Ringrose

Lime—
Ghent, 200 t. Wilson, Sons & Co., Ltd.

Naphthol—
Hamburg, 2 cks. Wilson, Sons & Co., Ltd.

Pitch—
Ghent, 60 cks. Wilson, Sons & Co., Ltd.

Potash—
Dunkirk, 49 pks. 22 cks. 6 dms. Wilson, Sons & Co., Ltd.

Rosin—
Brunswick, 250 brls.

Saltpetre—
Hamburg, 10 kgs. C. M. Lofthouse & Co.

Antwerp, 135 bgs. Wilson, Sons & Co., Ltd.

Size—
Hamburg, 3 cks. Wilson, Sons & Co., Ltd.

Soap—
Bari, 10 cs. Wilson, Sons & Co., Ltd.

Tartaric Acid—
Rotterdam, 8 cks.

Tin Oxide—
Rotterdam, 6 cks. Hutchinson & Son

Turpentine—
Brunswick, 1,500 brls.

Varnish—
New York, 6 brls. Wilson, Sons & Co., Ltd.

Antwerp, 1 ck. Bailey & Leetham
" 5 cks. J. & T. Seddon
Rotterdam, 3 brls. G. Lawson & Sons

White Lead—
Antwerp, 104 cks. Bailey & Leetham

Zinc White—
Amsterdam, 1 ck. W. & C. L. Ringrose

GLASGOW.

Week ending February 16th.

Antimony—
Hamburg, 1 ck.

Arachide Oil—
Rotterdam, 1 ck. J. Rankine & Son

Barium Sulphate—
Antwerp, 303 bgs.

Bone Meal—
Bombay, 6,360 bgs.

Boric Acid—
Leghorn, 15 cks.

Colours—
Rotterdam, 6 cks. 2 cs. J. Rankine

" 26 pks.

Cream of Tartar—
Marseilles, 22 cks.

Dyestuffs—
Alizarine
Rotterdam, 13 brls. J. Rankine

" 5 cks.

Extracts
New York, 100 cs.

Baltimore, 10 brls.

Antwerp, 7 cks.

Madder
Marseilles, 6 cks.

Sumac
Palermo, 500 bgs.

Tannin
Hamburg, 9 cks. 3 cs.

Glucose—
New York, 450 brls. 250 bgs.

Lead Acetate—
Hamburg, 12 cks.

Phosphate—
Antwerp, 100 bgs.

Pyrites—
Huelva, 1,637 t. The Tharsus & Copper Co.

Rosin—
Charleston, S.C., 850 brls.

Brunswick, G.A., 1,494

Baltimore, 250 J. Rankine

Saltpetre—
Tocopilla, 3,034 bgs.

Soap—
Marseilles, 1 cs.

Antwerp, 1

Stearine—
Boston, 125 cks.

Sulphur—
Marseilles, 4 brls.

Talc—
Genoa, 100 bgs.

Tallow—
New York, 20 trcs.

B. Ayres, 50 t.

Tar—
New York, 1 brl.

Tartar—
Bordeaux, 2 cks.

Tartar Emetic—
Hamburg, 5 cks. 1 cs.

Tartaric Acid—
Messina, 20 cks.

Tin Oxide—
Rotterdam, 2 cks. J. Rankine

Turpentine—
Charleston, S.C., 1,650 brls.

Brunswick, G.A., 1,375

Ultramarine—
Hamburg, 1 ck.

Zinc Oxide—
New York, 100 brls.

Antwerp, 20 cks.

TYNE.

Week ending February 17th

Alum Earth—
Hamburg, 72 cks. Tyne & Sons

Antimony—
Hamburg, 25 cs. Tyne & Sons

Barytes—
Antwerp, 110 bgs. Tyne & Sons

Colours—
Hamburg, 1 ck. 1 cs. Tyne & Sons

Antwerp, 32 brls.

Farina—
Hamburg, 150 bgs. Tyne & Sons

Saltpetre—
Hamburg, 16 cks. Tyne & Sons

Sulphur—
Ponaron, 650 t. 2 bxs. Mason & Co.
La Laja, 132 Bede Metal & Co.

Tartaric Acid — Rotterdam, 4 cks.	Tyne S. S. Co.
Ultramarine — Hamburg, 1 cs. 10 cks.	Tyne S. S. Co.
Zinc Oxide — Antwerp, 43 brls.	Tyne S. S. Co.

GOOLE.

Week ending February 1st.

Alum — Rotterdam, 6 cks.

Antimony Sulphide — Boulogne, 6 cks.
Caoutchouc — Boulogne, 2 cks.
Dyestuffs — Alizarine Rotterdam, 68 cks.
Extracts Ghent, 25 cks.
Hamburg, 20
Fustic Hamburg, 587 pcs.
Dyestuffs (otherwise undescribed) Boulogne, 25 cks. 1 cs. 8 pkgs.

Farina — Hamburg, 930 bgs.
Potash — Calais, 4 cks. 87 dms.
Dunkirk, 3 20
Pyrites — Huelva, 1,567 t.
Seville, 1,090
Saltpetre — Hamburg, 59 cks.
Waste Salt — Hamburg, 521 cks. 500 bgs.

GRIMSBY. Week ending February 4th.
Caoutchouc — Hamburg, 7 cs.
Chemicals (otherwise undescribed) Hamburg, 18 pkgs.
Farina — Hamburg, 275 bgs.
Glucose — Hamburg, 30 cks.
Naphtha — Rotterdam, 4 cks.
Zinc Ashes — Antwerp, 15 pkgs.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. Week ending February 15th.		Citric Acid — Libau, 3 t. 5 c. £490		Nitric Acid — Jersey, 2 t. 5 c. £44		Alum — Melbourne, 5 t. 1 c. £24	
Alkali — Wellington, 12 c. £6		Hamburg, 10 kgs. 1 ck. 10 c. 199		Phosphorus — Lisbon, 3 cs. £33		Malta, 1 9 7	
Guayaquil, 2 t. 12		Brussels, 1 40		Potash Salts — Natal, 50 t. 11 c. £6, £14		Toronto, 7 6 35	
Manzanillo, 12 6		Demerara, 1 9		Potassium Bichromate — Constantinople, 1 ck. £6		Lisbon, 11 4 10	
Pt. Elizabeth, 7 8		Lisbon, 5 cks. 42		Potassium Chlorate — Malta, 3 c. £13		Havana, 12 12 1 q. 32	
Alum — Casablanca, 1 t. 10 c. £12		Coal Products — Aniline 25 cks. £280		Potassium Citrate — Lisbon, 1 cs. £9		Galatz, 7 5 43	
Larache, 2 12 15		Aniline Oil 2 cks. £30		Potassium Cyanide — E. London, 10 c. £96		Genoa, 5 1 18	
Lahat, 3 5 20		Barcelona, 7 brls. 100		Salammoniac — Samsoun, 14 c. £23		Alexandretta, 1 6	
Aluminous Cake — Calcutta, 36 t. 2 c. £110		Anthracene Rotterdam, 278 cks. £1,330		Ammonia (Liquid) — N. Video, 10 c. 3 q. £39		Alumina Sulphate — Lisbon, 5 t. 4 c. £25	
Ammonia (Liquid) — Monte Video, 12 cs. £14		Dusseldorf, 179 282		Rangoon, 17 41		Ammonium Carbonate — Christiania, 1 t. £30	
Savannah, 12 50		Benzol Philadelphia, 21 drs. £241		Ammonium Chloride — Christiania, 1 t. 3 q. £20		Genoa, 3 84	
Ammonium Carbonate — Adeide, 1 t. £16		Rotterdam, 48 cs. 50 pkgs. 30 pns. £1,098		Trieste, 2 2 c. 3 71		Yokohama, 10 c. 16	
Ammonium Chloride — Yarna, 1 t. 10 c. £47		Calais, 36 cks. 121		Ammonium Sulphate — Marseilles, 20 t. 8 c. 2 q. £208		Rangoon, 5 11	
Maragan, 12 20		Naphtha Calcutta, 15 drs. £13		Demerara, 192 7 1 2,020		Barium Chlorate — Rotterdam, 4 c. £20	
Hamburg, 7 cks. 37		Naphthalene Philadelphia, 80 cks. £123		Genoa, 40 8 3 423		Barium Sulphate — Lisbon, 1 t. 9 c. 3 q. £5	
Cologne, 12 c. 20		New York, 179 247		Messina, 5 1 51		Bleaching Powder — Boston, 973 cks. 60 brls. 25 10 bxs.	
Constantinople, 10 16		Paraffin Wax Auckland, 4 tanks £121		New York, 228 8 2 2,351		Borax — Christiania, 10 c. £14	
Auckland, 1 25		Pitch Philadelphia, 512 bgs. £95		Boston, 44 13 489		Santiago, 6 9	
Ammonia Salts — Boston, 24 cs. £310		Rouen, 100 t. 137		Bordeaux, 15 3 3 153		Santos, 4 6	
Ammonium Sulphate — Hamburg, 11 t. 10 c. £120		Dunkirk, 350 1,650		Portland, M., 10 4 1 105		Boracic Acid — Havre, 5 t. 1 c. 2 q. £201	
Ghent, 150 1,575		St. Nazaire, 1,200 2,224		Nantes, 25 7 256		Borax — Christiania, 10 c. £14	
Oporto, 25 255		Cette, 1,946 19		Hamburg, 23 4 3 253		Santiago, 6 9	
Trinidad, 10 3 100		Melbourne, 25 cks. £48		Gr. Canary, 20 217		Santos, 4 6	
Barbadoes, 25 263		Tar Calcutta, 50 brls. £48		Valencia, 152 19 1 1,548		Borax — Rotterdam, 25 5 275	
Cape Town, 16 172		Toluol Rotterdam, 20 pns. £178		Las Palmas, 29 19 320		Antimony — Portland, M., 4 c.	
Ammonia — Calcutta, 2 t. 10 c. £55		Copperas — Rabat, 5 t. 7 c. £13		Soda Ash — Townsville, 5 t. 5 c. £33		Asbestos — Lisbon, 1 cs. 3 bgs.	
Boric Acid — Brisbane, 10 c. £20		Casablanca, 1 10 6		Sodium Bicarbonate — Auckland, 1 t. £8		Seville, 3 bgs.	
Wellington, 7 12		Corrosive Sublimate — Boulogne, 7 c. £50		Sulphate of Copper — Bombay, 5 t. £80		Barium Chlorate — Rotterdam, 4 c. £20	
R. Ayres, 5 kgs. 10		Cream of Tartar — Sydney, 1 t. 10 c. £120		Rio de Janeiro, 2 41		Barium Sulphate — Lisbon, 1 t. 9 c. 3 q. £5	
Adelaide, 15 63		Melbourne, 5 21		Malaga, 1 3 c. 15		Bleaching Powder — Boston, 973 cks. 60 brls. 25 10 bxs.	
Sydney, 5 10		Adelaide, 15 63		Palermo, 6 100		Borax — Christiania, 10 c. £14	
Disinfectants — Dunedin, 4 cs. £21		Brisbane, 2 14 215		Brisbane, 1 18		Santiago, 6 9	
Antigua, 3 pkgs. 15		Guano — Trinidad, 10 t. £78		Bordeaux, 6 93		Santos, 4 6	
Karachi, 21 16		Melbourne, 5 tks. 35		Sulphur — Brimstone, 20 cs. £8		Bleaching Powder — Boston, 973 cks. 60 brls. 25 10 bxs.	
Brisbane, 32 cs. 6 cks. 120		Calcutta, 25 cks. 15 drms. 26		Brisbane, 10 t. 1 c. 75		Borax — Christiania, 10 c. £14	
Sydney, 10 107		Iodine — B. Ayres, 1 cs. £32		Algoa Bay, 100 kgs. 39		Santiago, 6 9	
Melbourne, 5 tks. 35		Hamburg, 7 c. 400		Sulphuric Acid — Cape Town, 20 cbys. £15		Santos, 4 6	
Lead Acetate — Constantinople, 1 ck. £10		Lead Acetate — Constantinople, 1 ck. £10		Algoa Bay, 4 t. 10 c. 15		Borax — Christiania, 10 c. £14	
Manure — Orotava, 15 t. £125		Lead Acetate — Constantinople, 1 ck. £10		Santos, 10 cs. 15		Santiago, 6 9	
Trinidad, 85 735		Lead Acetate — Constantinople, 1 ck. £10		Superphosphate — Barbadoes, 50 t. £200		Santos, 4 6	
Martinique, 104 10 c. 615		Lead Acetate — Constantinople, 1 ck. £10		Genoa, 19 19 c. 64		Borax — Christiania, 10 c. £14	
Guadeloupe, 3 8 90		Lead Acetate — Constantinople, 1 ck. £10		Oporto, 10 120		Santiago, 6 9	
Natal, 3 4 18		Lead Acetate — Constantinople, 1 ck. £10		Tartaric Acid — Karachi, 1 t. £65		Santos, 4 6	
Jersey, 51 424		Lead Acetate — Constantinople, 1 ck. £10		Melbourne, 2 8 pkgs. 23		Borax — Christiania, 10 c. £14	
Lisbon, 49 18 125		Lead Acetate — Constantinople, 1 ck. £10		Adelaide, 18 c. 93		Santiago, 6 9	
Limon, 76 19 668		Lead Acetate — Constantinople, 1 ck. £10		LIVERPOOL. Week ending February 15th.		Santos, 4 6	
Cape Town, 32 82		Lead Acetate — Constantinople, 1 ck. £10		Alkali — M. Video, 2 t. 8 c. 2 q. £16		Borax — Christiania, 10 c. £14	
Terneuzen, 331 1,800		Lead Acetate — Constantinople, 1 ck. £10				Santiago, 6 9	

Calcium Chloride—
Adelaide, 1 t. 1 c. £4

Caoutchouc—
Rio Grande do Sul, 1 ca.
Santos, 1

Carbolic Acid—
Yokohama, 1 t. 2 c. 2 q. £49
Hamburg, 11 2 13
Colon, 15 dms. 10
Philadelphia, 5 14 108

Castor Oil—
Honolulu, 100 dms.

Caustic Soda—
Adelaide, 35 dms.
Baltimore, 568 135 brls.
Barcelona, 100 108 cks. 90
Boston, 150
Constantinople, 3
Curacao, 8
Genoa, 46 20 kgs.
Hio, 200
La Guayra, 10
Lisbon, 150
Messina, 72
New York, 757 25 bxs.
Oporto, 30
Para, 20
Passages, 205 15
Puerto Cabello, 15
Rio Grande do Sul, 40
San Francisco, 300 10
Santander, 50
San Sebastian, 36
Seville, 250
Valparaiso, 70 25 kgs.
Yokohama, 100
Alicante, 30
Amsterdam, 30
Bahia, 55
B. Ayres, 18
Catania, 30
Corinto, 40
Hong Kong, 50 6
New Orleans, 50
Rotterdam, 141 5
Vera Cruz, 250

Chemicals (otherwise undescribed)
Genoa, 2 t. £72
Venice, 1 34
Marseilles, 1 34
Christiana, 1 10 c. 17
Trieste, 1 7 2 q. 12
Malta, 1 7 2 q. 12
Alexandretta, 1 34
Alexandria, 3 108
Philadelphia, 6 11 144
Hamburg, 2 1 1 60

China Clay—
Barcelona, 2 t.
Bombay, 170
Boston, 1,054
Naples, 40 cks.
Portland, M., 50 pkgs.

Citric Acid—
Genoa, 10 c. £78
Mexico City, 2 16

Coal Products—
Aniline Colours
Shanghai, 25 cs.
Milano, 1

Aniline Dyes
Hong Kong, 1 cs.
Pitch

Sierra Leone, 20 brls.
Coquimbo, 100
Dunkirk, 297 t.
Galatz, 30
Tar
Honolulu, 100 dms.
Philadelphia, 100 brls.
Galatz, 54

Tar Oil
B. Ayres, 400 dms.

Copper Sulphate—
Vigo, 2 t. 11 c. £35
Boston, 1 13 2 q. 27
Genoa, 19 10 282
B. Ayres, 5 75
Bordeaux, 182 18 3 2,786
M. Video, 2 9 1 39
Venice, 45 18 3 600
Bari, 2 5 1 34
Lisbon, 2 3 32
Rouen, 25 17 3 221
Leghorn, 14 17 3 75
Odessa, 5 1 3 1
Valparaiso, 1 1

Dried Blood—
Baltimore, 51 t. 7 c. £300
Gr. Canary, 10 3 1 q. 68

Farina—
Magog, P.Q., 6 cks.

Guano—
Valencia, 150 t. £565

Gypsum—
New York, 27 t. 10 c. £81

Iron Oxide—
B. Ayres, 11 t. 17 c. £179

Lead Acetate—
Genoa, 10 c. £15

Lime—
Antigua, 5 t.
C. C. Castle, 20 brls. £6

Litharge—
Oporto, 4 cks.

Magnesia—
Mexico City, 6 c. £16

Magnesium Chloride—
Bombay, 15 t. 3 c. £40
Hio, 4 cks.

Magnesium Sulphate—
Montreal, 10 cks.
Salonica, 7 brls.

Manure—
Rochefort, 749 t. 5 c. 2 q. £2,712
Malaga, 83 850
Alexandria, 10 80
New York, 25 191
Genoa, 294 2 1 1,316
Bordeaux, 503 15 3 1,460
Cherbourg, 520 1 3 1,550
Havre, 200 1 3 588
Gr. Canary, 20 75

Ochre—
Pernambuco, 40 kgs.
St. John's, Nfld., 35
Valparaiso, 12 brls.

Oxalic Acid—
Yokohama, 11 c. 3 q. £15
Trieste, 1 t. 2 3 30

Paint—
B. Ayres, 40 cks. 28 dms.
Cadiz, 3 50 kgs.
Cephalonia, 24
Colombo, 1 10
Honolulu, 35 235
Melbourne, 2 210
Monrovia, 2 10
New York, 10
Accra, 22 tins.
Adiab, 18
Antofagasta, 30
Callao, 54
C. C. Castle, 5 tins. 20
Carthagena, 20 40
Gibraltar, 20
Gr. Canary, 20
Havana, 4
Humacao, 1
Jeremie, 8
Matanzas, 2
Novo Redondo, 290
Para, 11
Parnahiba, 1
Ponce, 1
Pt. Limon, 260
St. John's, Nfld., 8
Savannah, 10
Sierra Leone, 20
Underhill, 6
Ukaka, 1
Valparaiso, 38 1 brl.

Painters' Colours—
Alexandria, 10 cks. 15 brls.
Antwerp, 5 15
Calcutta, 30 cs.
C. C. Castle, 10 dms. 15 kgs.
Havana, 19
Havre, 100
Maranham, 2 cs.
Nassau, 2 cks. 20
Newport News, 100
New York, 39 1
Odessa, 140
Pernambuco, 14
Portland, M., 2 es.
Rio Grande do Sul, 3
Rotterdam, 1
Santiago de Cuba, 2
Boca del Riachuelo, 1 ck.
Cabenda, 3 dms. 9
Capetown, 2 cks. 2
Ceara, 1 cs. 4
Hamilton, 7 dms.
Lisbon, 3 26
Manaos, 2 2 1
Monrovia, 10 dms. 36
Rangoon, 16
Valparaiso, 4 cs. 14

Paraffin Wax—
Alexandria, 8 cs.
Ferrol, 4
Mitylene, 5
Odessa, 12 bgs.

Phosphorus—
Santiago de Cuba, 2 cs. £29
Hio, 10 129

Potassium Bichromate—
Genoa, 1 t. 6 c. £42
Brisbane, 8 21
Mexico City, 1 7 3 q. 53
Piraeus, 1 1 48

Potassium Chlorate—
Boston, 1 t. 10 c. £89
Leghorn, 5 1 q. 79
La Guayra, 5 15
Antwerp, 2 189
Genoa, 1 15 100
Oporto, 6 18
Toronto, 10 34
Christiana, 4 255
New York, 7 10 444
Hamburg, 9 15 578
Ancona, 3 6 195
Rotterdam, 2 10 140
Yokohama, 5 278
Hio, 58 17 3,685

Potassium Cyanide—
Halifax, 1 cs. £8

Salt—
Akassa, 100 t.
Antwerp, 585
B. Ayres, 5 7 c.
Cameroon, 100
Guayaquil, 1 1
Halifax, 431 1
Hamburg, 14 15 100 cs.
Ingersoll, 44
Manaos, 10
Matadi, 35 14
Newcastle, 17 17
New York, 160
Odessa, 24 12
Philadelphia, 50
Rangoon, 1,963
Rio de Janeiro, 1 8
Shanghai, 10
Abonema, 12½
Accra, 5
Alexandria, 50
Alligator Pond, 5
Bakana, 43 9
Bata, 12½
Benin, 25
Black River, 9 18
Boston, 200
Brussels, 2
Buguma, 8 18
Calcutta, 7,464
Capetown, 10
Conakry, 85
Monrovia, 5
New Orleans, 620
Noqui, 3½
Ogowe, 9
Old Calabar, 25
Opobo, 113
Para, 394½
Port Natal, 494 9
Quillo, 100
Rotterdam, 161
Seville, 15
Sierra Leone, 200
Trinidad, 49 3

Salt Cake—
Philadelphia, 196 t. 5 c. £419
Baltimore, 326 1 686
Pittsburg, 225 5 521
Malta, 2 8 6

Saltpetre—
Pernambuco, 5 t. 7 c. 1 q. £130
New Orleans, 1 1 2 23
Santos, 3 7 73
Cabedello, 1 10 34
San Francisco, 14 296
Portland, O., 4 3 2 88
Pernambuco, 9 19 3 132
Port Natal, 10 12

Sheep Dip—
Rangoon, 10 c. £12
M. Video, 3 t. 5 50
B. Ayres, 32 2 924

Size—
Magog, P.Q., 6 cks.

Snap—
Bombay, 41 cs.
Brussels, 400

Cairo, 20
Colombo, 9 bxs. 1
Constantinople, 1
Gibraltar, 191 51
Kurrachee, 551 60
Las Palmas, 200
Limassol, 10
Louisanne, 100
Madras, 24
Malta, 30
New York, 25 18
Para, 300 3
Philadelphia, 150 1
Portland, M., 1
Salonica, 5
Sandy Point, 6
Tangiers, 10
Valparaiso, 7
Warri, 150
Accra, 200
Addah, 50
Alexandria, 20 5
Algoa Bay, 2,824
Annot Bay, 30
Barbadoes, 200
Bathurst, 84
Boma, 15
Bota, 10
Boston, 195
Buguma, 2
Calcutta, 10 17
Capetown, 1,050
Christiana, 195
Colon, 100
Coquimbo, 1
E. London, 750
Guayaquil, 500
Kingston, Ont., 1,200
Ja., 1,680
Manaos, 325
M. Video, 2
Old Calabar, 700
Opobo, 350
Penang, 9
Port Natal, 1,082
Frank Fram, 50
Rangoon, 700
St. Anne's Bay, 15
John's, Nfld., 225
Lucia, 360
Thomas, 231
Salt Pond, 50
Sette Cama, 30
Shanghai, 100
Sierra Leone, 30
Toronto, 1
Ukaka, 100

Soda Alkali—
N. Zealand, 40 brls.
Smyrna, 70
Venice, 35

Soda Ash—
Amsterdam, 20 cks.
Antwerp, 2 80 bgs.
Bombay, 8
B. Ayres, 1
Calcutta, 7
Carthagena, Sp., 11
Dunedin, 10 50
Genoa, 10 80
Kingsey, 6
Lisbon, 6
M. Video, 50
Montreal, 20 400
New Glasgow, 7
York, 908 1,135
Oporto, 10
Philadelphia, 685 1,600
Rio de Janeiro, 102
Rosario, 50
Rotterdam, 400
San Francisco, 13
Sherbrooke, 96
Varna, 1
Vera Cruz, 1 cs. 40
Windsor, 7
Yokohama, 232
Baltimore, 908 808
Barcelona, 17
Boston, 481 1,450
Leghorn, 144
Valparaiso, 144

Soda Crystals—
Almeria, 46 br
Halifax, 30 cks.
M. Video, 14
New Orleans, 41 308
York, 140 167
Philadelphia, 140 50
Algoa Bay, 107
Boston, 10
Honolulu, 50 50
Malta, 10 cks.

Soda Salts—
New York, 10 cks.

Sodium Acetate —			
Naples, 1 ck.			
Sodium Biboate —			
Portland, M., 45 brls.			
Sodium Bicarbonate —			
Adelaide, 200 kgs.			
Alexandria, 32 brls.			
Algiers, 14			
Antwerp, 25			
Barcelona, 350			
Calcutta, 100			
Halifax, 160			
Hamburg, 50	3	5 cks.	
Havre, 100			
Melbourne, 10			
Mexico, 20	20 bgs.	7	
Nagasaki, 200			
Newcastle, 20			
New Orleans, 150		6	
Odessa, 20			
Rotterdam, 20			
San Francisco, 15			
Singapore, 20			
Sydney, 100			
Trieste, 50			
Trinidad, 20			
Yokohama, 2,000			
Otago, 50			
Wellington, 20			
Sodium Bichromate —			
Ghent, 23 cks.			
Sodium Bisulphite —			
Kurrachee, 6 dms.			
Sodium Chlorate —			
Ghent, 4 ck.			
Hamburg, 70 kgs.			
Antwerp, 20			
Genoa, 10			
Rotterdam, 15			
Sodium Silicate —			
Malaga, 16 cks.			
Auchland, 8 brls.			
Il. Ayres, 5			
Operto, 15			
Pinar, 10			
Valencia, 35			
Wellington, 10			
Sodium Sulphate —			
Kurrachee, 10 kgs.			
Philadelphia, 40 cks.			
Stearine —			
New York, 20 cks.			
Sulphur —			
Calhoun, 1 t. 15 c.	£12		
Callao, 18	6		
Pernambuco, 1 9 2 q.	10		
Boston, 350 8	1,351		
Barbadoes, 50 2	216		
Portland, M., 5 2	21		
Jeddah, 3	20		
Superphosphate —			
Valencia, 80 t. 15 c. 2 q.	£218		
Superphosphate of Lime —			
Valencia, 25 t. 6 c. 1 q.	£78		
Tallow —			
Almeria, 21 brls.			
Alexandria, 9			
Carthagena, Sp, 25 cks.			
Operto, 88			
Turpentine —			
Gibraltar, 4 c.	£5		
Varnish —			
Colombo, 3 dms.			
Rotterdam, 1 cs.			
White Lead —			
Melbourne, 122 cks.			
Rio de Janeiro, 1			
Sydney, 8			
Zinc Chloride —			
New York, 5 t. 6 c.	£75		
Zinc Sulphide —			
New York, 5 t. 5 c.	£75		

HULL.

Week ending February 11th.

Alkali —			
Boston, 37 cks.			
Ammonium Sulphate —			
Dunkirk, 1,358 bgs.			
Hamburg, 967			
Rotterdam, 300			
Benzol —			
Hamburg, 16 dms.			
Bleaching Powder —			
Boston, 195 cks.			
Harlingen, 32			
Caustic Soda —			
Alexandria, 35 dms.			

Chemicals (otherwise undescribed)

Antwerp, 2 cs.			
Amsterdam, 1 8 pks.			
Bremen, 1 ck.			
Christiania, 2 cs. 3,128 slbs.			
Gothenburg, 6 25 cks.			
Hamburg, 6 3 103 pks. 100 kgs.			
New York, 50			
Rotterdam, 120			
Rouen, 15			
Trieste, 20			

Cottonseed Oil

Alexandria, 512 c.			
Antwerp, 500			
Bremen, 100			
Flushing, 100			
Hamburg, 7			
Rotterdam, 1,933			
Trieste, 400			

Creosote

Rotterdam, 24 cks.			
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Dyestuffs (otherwise undescribed)

Amsterdam, 1 cs.			
Hamburg, 1 dm. 1 cs.			
Rotterdam, 24 cks.			

Linseed Oil

Alexandria, 55 c.			
Christiania, 120			
Hamburg, 615			
New York, 85			
Rotterdam, 96			

Manure

Dunkirk, 54 t.			
Hamburg, 181 bls.			
Rotterdam, 100 t.			
Venice, 150			

Naphtha

Dunkirk, 50 cks.			
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Ochre

Antwerp, 4 cks.			
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Painters' Colours

Antwerp, 2 cs. 14 cks.			
Bordeaux, 6			
Boston, 25 pks.			
Christiania, 1 cs. 69 pkgs.			
Dunkirk, 1 ck.			
Flushing, 1			
Gothenburg, 1 cs.			
Hamburg, 1 9 cks. 1 pkg.			
New York, 50			
Rotterdam, 4 kgs. 1 cs. 8 cks. 3 pkgs.			
Rouen, 1 14			

Pitch

Antwerp, 190 t.			
Dunkirk, 271			

Potassium Chlorate

Hamburg, 100 kgs.			
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Tar

Amsterdam, 82 cks.			
Hamburg, 1 ck.			
Rotterdam, 10 cks.			

Varnish

Alexandria, 24 dms.			
Antwerp, 1 cs.			
Bordeaux, 2 cks.			

GLASGOW.

Week ending February 16th.

Acids —			
Bombay, 75 t.	£1,000		
Ammonium Sulphate —			
Venice, 50 t. 5 1/4 c.	£550		
Philadelphia, 61 5	641		
Bleaching Powder —			
Bombay, 1 t. 18 c.	£28		
Brisbane, 65 11 1/4	593		
Borax —			
Lisbon, £30			
Castor Oil —			
Brisbane, £35			
Cottonseed Oil —			
Hungary, 15 t. 4 1/2 c.	£293		
Rotterdam, 5	119		
Coal Products —			
Allizarine Colours			
Lisbon, 13 1/2 c.	£48		
Allizarine Oil			
Lisbon, £22			
Aniline Salts			
Lisbon, 9 c.	£33		
Benzol			
Rotterdam, 30 pns.	£262		
Pitch			
Dieppe, 660 t.			
Pitch and Oil			
Dieppe, 470 t.			
Tar			
Calcutta, 46 t. 17 1/2 c.	£163		

Tar Oil

Hungary, 36 t. 13 c.	£172		
Extracts			
Barcelona, 2 t. 18 1/4 c.	£66		
Indigo Extract			
New York, 6 t. 4 1/2 c.	£150		
Indigo			
Lisbon, 12 c. 11 lbs.	£200		
Madder			
Calcutta, 2 t. 3 1/4 c.	£68		

Dyestuffs (otherwise undescribed)

Barcelona, 2 t. 18 1/4 c.	£66		
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Iron Oxide

Brisbane, 6 t. 13 1/2 c.	£40		
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Lead Acetate

Calcutta, 1 t. 2 c.	£32		
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Linseed Oil

Peru, 6 t. 19 1/2 c.	£153		
Malta, 1 4 1/2	24		
Brisbane, 1 15	£29. 158.		

Magnesium Sulphate

Bombay, 5 t.	£20		
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Paint

Chili, 13 t. 10 1/2 c.	£231		
Cuban Ports, 10 17 1/2	131		
Calcutta, 5 13 1/2	114		
New York, 4 17 1/2	63		
Brisbane, 177			

Painters' Colours

Peru, 2 t. 10 c.	£29		
Malta, 1 4 1/2	£19. 198.		
Bombay, 1 15	£22		

Paraffin Wax

Barcelona, 12 t. 19 1/2 c.	£297		
Venice, 22 15 1/4	640		
Hungary, 43 12	1,005		
Rouen, 15 1/4	20		
Nantes, 3 10 1/4 18 lbs.	89		
Antwerp, 1 7	50		
Christiania, 6 4	130		

Potassium Bichromate

Calcutta, 2 t. 2 1/2 c.	£90		
Venice, 8 16 1/4	350		
Rotterdam, 12 cks.	540		
Amsterdam, 12	195		
New York, 31 t. 5 1/2 c.	1,169		
Halifax, 5 4 1/2 22 lbs.	208		
Rouen, 29 6	1,052		
Bombay, 3 1/2	42		
Nantes, 5 1/2	109		
Lisbon, 4 3 1/4	160		
Antwerp, 12 14 1/2	492		

Salt

Brisbane, 320 t.	£337		
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Sodium Arseniate

Lisbon, 2 t. 4 c.	£28		
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Sodium Bichromate

Venice, 1 t. 9 c.	£49		
New York, 28 4 1/2	857		
Rouen, 6 15 1/4	221		
Lisbon, 2 t. 4 1/2 11 lbs.	76		
Antwerp, 12 16 1/4	464		

Sulphuric Acid

Demerara, 2 t. 11 1/2 c.	£22		
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Tallow

Antwerp, 11 t. 11 c.	£254		
Rotterdam, 5 10	120		
New York, 74	2,500		

White Lead

Brisbane, 1 t. 19 1/4 c.	£39. 108.		
Huelva, 1 3/4	21 158.		
Calcutta, 2	29. 108.		

TYNE.

Week ending February 11th.

Alkali —			
Antwerp, 4 t.			
Genoa, 13 8 c.			
Christiania, 9			
Amsterdam, 107 10			
Venice, 5 10			
Leghorn, 33 11			
Ammonium Carbonate —			
Genoa, 11 c.			
Ammonium Chloride —			
Genoa, 13 c.			
Ammonium Sulphate —			
Hamburg, 50 t. 13 c.			
Genoa, 60			
Antimony —			
Hamburg, 3 t.			
Ergastiria, 9 4 c.			
Rotterdam, 9			
Arsenic —			
Venice, 7 t. 6 c.			
Barytes —			
Antwerp, 50 t. 9 c.			

Bleaching Powder

Terneuzen, 5 t. 16 c.			
Hamburg, 15			
Antwerp, 122 17			
Amsterdam, 37 10			
Venice, 13 13			
Rotterdam, 15 16			
Drontheim, 10			
Bergen, 2			

Caustic Soda

Antwerp, 13 t. 1 c.			
Amsterdam, 28 15			
Odessa, 54			
Venice, 30 15			
Bergen, 2			
Genoa, 56 18			

Colours

Ergastiria, 7 c.			
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Disinfectants

Hamburg, 1 c.			
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Litharge

Terneuzen, 11 c.			
Hamburg, 1 t. 8			
Antwerp, 5 1			
Amsterdam, 1 1			

Magnesia

Hamburg, 5 c.			
Antwerp, 2			
Barcelona, 7 t. 15			
Genoa, 2			

Manganese

PRICES CURRENT.

WEDNESDAY, FEB. 22nd, 1911

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids :—		£ s. d.	per cwt	7/- & 11/-	50/-
Acetic, 25 % and 40 %	per cwt	7/- & 11/-			
Glacial	"	50/-			
Arsenic S.G., 2000°	"	0 14 6			
Fluoric	per lb.	0 0 3 3/4			
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10			
(Cylinder), 30° Tw.	"	0 3 0			
Nitric 80° Tw.	per lb.	0 0 1 3/4			
Nitrous	"	0 0 1 3/4			
Oxalic	nett	0 0 3 3/4			
Phosphoric, 1750°	"	0 1 2 1/2			
Picric	"	0 1 0			
Sulphuric (fuming 50 %)	per ton	15 10 0			
" (monohydrate)	"	5 10 0			
" (Pyrites, 168°)	"	3 0 0			
" 150°	"	1 5 0			
" (free from arsenic, 145°)	"	1 6 0			
Sulphurous (solution)	"	2 15 0			
Tannic (pure)	per lb.	0 1 2			
Tartaric	"	0 0 11 1/2			
Arsenic, white powdered	nett	per ton 13 10 0			
Alum (loose lump)	"	5 5 0			
Alumina Sulphate (pure)	"	5 0 0			
Aluminium	per lb.	0 4 0			
Ammonia, Anhydrous	"	0 1 1			
" 880 = 28°	per lb.	0 0 2 1/2			
" = 24°	"	0 0 1 3/4			
" Carbonate	nett	0 0 3 3/4			
" Muriate	per ton	20 0 0			
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-			
" Nitrate	per ton	38 10 0			
" Phosphate	per lb.	0 0 10 1/2			
" Sulphate (grey) London	per ton	10 15 0			
" (grey) Hull	"	10 15 0			
Aniline Oil (pure)	per lb.	0 0 7 3/4			
Aniline Salt	"	0 0 6 3/4			
Antimony	per ton	45 10 0			
" (tartar emetic)	per lb.	0 1 0			
" (golden sulphide)	"	0 0 10			
Barium Chloride	per ton	7 10 0			
" Carbonate (native)	"	3 10 0			
" Sulphate (native levigated)	"	45/- to 75/-			
Bleaching Powder, 35 %	nett	8 0 0			
" Liquor, 7 %	"	3 10 0			
Bisulphide of Carbon	"	11 15 0			
Chromium Acetate (crystal)	per lb.	0 0 6			
Calcium Chloride	per ton	2 5 0			
China Clay (at Runcorn) in bulk	"	17/6 to 35/-			
Coal Tar Dyes :—					
Alizarine (artificial) 20 %	nett	per lb. 0 0 8			
Magenta	"	0 3 9			
Coal Tar Products					
Anthracene, 30 % A, f.o.b. London	per unit	per cwt. 0 1 2			
Benzol, 90 % nominal	per gallon	0 1 7			
50/90	"	0 1 5			
Carbolic Acid (crystallised 40°)	per lb.	0 0 7 1/2			
" (crude 60°)	per gallon	0 2 2			
Creosote (ordinary)	"	0 0 1 1/4			
" (filtered for Lucigen light)	"	0 0 1 3/4			
Crude Naphtha 30 % @ 120° C.	"	0 0 11			
Grease Oils, 22° Tw.	per ton	2 5 0			
Pitch, f.o.b. Liverpool or Garston	"	1 6 0			
Solvent Naphtha, 90 % at 160°	per gallon	0 1 2			
Coke-oven Oils	"	0 0 1 1/4			
Copper	per ton	45 8 9			
" Sulphate	"	16 5 0			
" Oxide (copper scales)	"	42 0 0			
Glycerine (crude)	"	13 0 0			
" (distilled S.G. 1250°)	"	43 0 0			
Iodine	nett, per oz.	0 0 9			
Iron Sulphate (copperas)	per ton	1 12 6			
" Sulphide (antimony slag)	"	2 0 0			

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Notices.

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Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday** evening.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, to one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and Business Wants, and Specific Articles for Sale by Private Contract are accepted in the *Chemical Trade Journal* at the following rates:—

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

SEMET-SOLVAY COKE OVENS.

WE fear the day is not very far distant when Benzol will fall to the once predicted price of one shilling per gallon. Steady progress is being made with the introduction of Semet-Solvay ovens, which not only yield excellent coke suitable for all metallurgical processes, but the yield of tar, benzol, and sulphate of ammonia obtained from the coke oven gases is becoming an important factor in the market of these bye-products.

The Compagnie des Mines de Drocourt, in the North of France, has just started working five of these ovens, and 150 others on the same system will within a few weeks be put in operation by the following companies:—Société de Marcinette and Couillet, near Charleroi, Société des Charbonnages des Kessales, near Liège, Société John Cockerill, at Seraing, and the Phoenix Company at Laar, near Ruhrort.

These two hundred ovens will have a *minimum* production of 24,000 gallons of 90's Benzol per month, though it is more likely the monthly turnout will reach nearer 36,000 gallons. Adopting the former figure however, we shall have nearly 300,000 gallons of Benzol on the market in a year, in addition to the usual supply. The introduction of this additional quantity is not likely to improve the price of this commodity, and it will be as well for tar distillers to keep a sharp watch on this new source of Benzol, so as to avoid the losses which would attend the purchase of tar at too high a figure.

In Germany also we are informed the construction of coke ovens and the recovery of the bye-products is making steady progress, while we are glad to further hear that in this country active steps have been taken towards accomplishing the erection of a considerable number of Semet-Solvay coke ovens.

THE DISEASES OF CHEMICAL WORKERS.

Considerable attention has been drawn during the past five or six months to the unhealthiness of the occupations of potters, cutlery grinders, and chemical operatives by the *Daily Chronicle*, which has published a series of articles, written by a Special Commissioner, describing in glowing terms the misery and misfortune which is bound to overtake those who are engaged in such work. We shall confine our remarks for the nonce to the question of chemical labour.

While we admit that all the detailed instances of death or premature decrepitude so vividly depicted may be perfectly authentic, still there is a medium in all things. A paper was read by Mr. Watson Smith before the Chemical Society of the University College, last week, upon "Diseases incident to workpeople in chemical and other industries," and, as is natural to suppose, treated the matter from a chemical standpoint. Consequently the general tone of the paper was antagonistic to the views set forth in the articles which we

have previously mentioned. The same daily organ has, however, criticised the proceedings of the University College Chemical Society adversely, and elsewhere in this issue we have quoted the criticisms. The Society seems to be in error because it sanctioned the expression of interested opinions; but it must not be forgotten that all opinions are, more or less, interested one way or the other. If it is fair to recount all the horrors of a trade without mentioning any extenuating circumstances, it is also fair that inversely, proportionate prominence should be given to facts which largely exonerate employers, and for the dangers to be largely ignored. As far as the chemical trade is concerned we think as much blame lies at the door of the employee as of the employer. There is no lack of appliances wherewith the lot of the chemical worker may be made easier; but, as a general rule, the employees are too indifferent to put the same to good use. No one can keep in good health without taking some trouble over themselves. There are hundreds of well-to-do people who prefer taking pills by the box to walking a mile as a constitutional exercise. It is hardly surprising, therefore, to find similar apathy amongst the working classes. Although there are pleasing exceptions in both cases, still cleanliness is next to godliness. The latter is not very prevalent in a chemical works; and this (owing to the close relationship) accounts, we suppose, for cleanliness likewise often being conspicuously absent. There is one other point we should like to emphasise. It is well known that to popularise science is a gift which but very few men possess, and the instances of success are greatly outnumbered by those of failure. To give a popular account of the dangers entailed in chemical manufacturing operations is a still more difficult task, and should, therefore, be undertaken with diffidence, while it should be borne in mind that those who constitute the pleasing exceptions in the matter of cleanliness, and which we have admitted exist, generally tell a very different tale to those who adopt the plan of washing themselves internally with "distilled waters," in preference to externally with "aqua tap."

A QUESTION OF NOVELTY.

The balance between certain points of patent law is so finely adjusted that a straw almost seems capable of destroying the equilibrium. On the question of novelty there are plenty of cases which show how easy it is to refute the charge of want of novelty, but the decision given in a case in the Queen's Bench Division of the High Court of Justice, this week, shows that the claims to novelty can be cut too fine. The plaintiff was the maker of a patent anti-incrustator for boilers, and for purifying and softening water, which was made of a certain fibre, the properties of which were well known, but which was bound together by a metal ring, in which the virtue of the patent lay, as in this particular novelty was claimed for the invention. The defendant had produced an article closely resembling the patented one, which he sold for a few pence as against half-a-crown, which was the cost of the patented anti-incrustator; it being argued that, the invention being merely a combination which had not been adopted in its entirety, there had been no infringement of the patent. The plaintiff, however, further stated that the defendant's infringing modification did not act as well as the original, and therefore contended that the counter claim made by the defendant for loss of custom through the instrumentality of the plaintiff did not hold good. In giving judgment Mr. Justice Mathew held that the patent had been infringed, as the defendant's combination was equivalent to the plaintiff's, and showed the same collocation of parts, and therefore ruled for the plaintiff on both claim and counter-claim.

THE DETECTION OF FIREDAMP.

LAST week, at a meeting of the Society of Arts at their rooms in the Adelphi, Sir Frederick Abel, K.C.B., D.C.L., taking the chair, Professor Clowes, of University College, North London, read a paper on the detection and estimation of small proportions of inflammable gas or vapour in the air. It may be stated that the hydrogen flame has, for many years, been recommended as the flame best suited for the detection of inflammable gas and vapour in the air; but, says the *Times*, all attempts to apply it in a safe manner have hitherto been unsuccessful, and the application of hydrogen for this purpose, and the exact measurement and descriptions of its properties, must therefore rank as a new invention by Professor Clowes. He said that the serious loss of life and damage to property from colliery explosions, and from the explosions of vapour from petroleum-carrying steamers, are now matter of public knowledge. The danger and loss arising in these ways have been, in great measure, reduced by the enforcement of Government regulations, and by special precautions to be adopted by those concerned in the mining and petroleum industries. Probably the least satisfactory of these precautionary measures are those concerned with the detection and measurement of small quantities of the inflammable gas or vapour; and although many forms of testing apparatus, designed for the purpose, have been brought forward, none of them has been generally compulsory in use, or has even been strongly urged in this country as has been done on the Continent. The more delicate flame-testing apparatus already brought forward are wanting in many of the essentials of convenience, safety, accuracy, and durability, not getting easily out of working order; for employment in coalmines they also fail in serving for illumination. The apparatus appears to be free from all objections on these grounds. It consists of an ordinary miner's safety lamp burning an oil flame in the usual way; but it is provided, when necessary, with a small attachment, consisting of a steel cylinder fitted with compound glass, through which hydrogen gas is introduced. Several of these little cylinders can be carried in the pocket. When a cylinder is attached to the side of the safety lamp, it furnishes a supply of hydrogen gas to a jet issuing from the lamp flame; the gas is kindled by the flame, and on the edge of the oil flame by the usual device from outside, a hydrogen flame is obtained burning securely in the interior of the lamp. When the illuminating oil flame is required, the wick is kindled by puffing from outside against the hydrogen flame, and as soon as the hydrogen flame is burning the hydrogen flame is extinguished. In the process of "gas-testing" in a coalmine, the gas is detected by reducing the size of the oil flame, until the luminosity almost disappears, then looking for a pale flame or "cap" above the reduced flame. This "cap" is caused by the gas present in the air, and the amount of the gas present can be judged by the appearance and dimensions of the flame-cap. This method, however, does not detect less than 1 per cent. of gas; whilst for many purposes it is necessary to detect as small a quantity as a quarter of 1 per cent. It is for this object that the hydrogen flame is introduced. It is far more delicate and sensitive in its indications than the oil lamp is, and easily carries the testing down to the lowest limit necessary. Accordingly, when employed for the new lamp, the tests for the larger proportions of gas, from 1 per cent. to 6 per cent., would probably be made in the usual way, and with the usual lamp. But when less than 2 per cent. of gas has to be detected, the safety lamp is, in a few seconds, converted, by the use of the already described, into a gas-testing apparatus as delicate and sensitive as any existing. The testing throughout the whole range, from a quarter of 1 per cent. to 6 per cent., may be carried out with the hydrogen flame alone, if its size is suitably varied; this insures greater accuracy than the ordinary oil-flame test can do. The testing, which may thus be secured with extraordinary facility and safety, is now strongly advocated by the highest authorities, as being indispensable for quickly gauging the general condition of the mine atmosphere; this is effected satisfactorily and expeditiously by the examination of the "return" ventilation current. The delicate testing is also necessary in order to insure the safety of "dusty" mines, since air containing less than 1 per cent. of gas is explosive in the presence of coal dust; this danger is not indicated by an ordinary lamp. When the hydrogen test-lamp is applied to the detection and measurement of petroleum vapour in the air, it will detect 1-20th of the amount which is inflammable in air, and 1-36th of the proportion which renders air explosive. The test is also extremely delicate for the detection and measurement of ordinary coal-gas in the air, while for the detection of the very poisonous "water-gas" the indications are quite sufficient to detect a proportion in the air less than that which it is still competent authorities to be poisonous when breathed. It would probably be found convenient in testing for petroleum vapour, under certain conditions, to substitute stationary apparatus containing a hydrogen flame for a portable illuminating and testing apparatus as that already described. This may also be done when tes-

fire-damp, coal-gas, water-gas, and other inflammable gas or vapour. It would then be necessary to bring samples of the air to be tested to the testing apparatus; apparatus suitable for the purpose of collecting, transporting, and testing samples of air is being perfected by Mr. Boverton Redwood.

In the discussion that followed the reading of the paper, Sir Frederick Abel said that the invention just described was one of no little importance. There were many devices for detecting small quantities of fire-damp, but he thought that they had all been surpassed in simplicity and certainty by the result of Professor Clowes' patient investigations of the subject. The lamp seemed to be a practical one, and he was both surprised and pleased to see the degree of excellence it had reached.

A cordial vote of thanks to Professor Clowes was passed.

RECENT CUSTOMS DECISIONS.

BAUXITE OR HYDRATE OF ALUMINA.

IN the matter of the protests of Thos. Irwin & Sons against the return of the local appraiser, whereby the collector was led to assess the goods under paragraph 9 of the New Tariff Act, which reads as follows:—

"Alumina, alum, alum cake, patent alum, sulphate of alumina, and aluminous cake, and alum in crystals or ground, six tenths of one cent. per pound."

The Treasury Department recently referred a sample of the merchandise to the collector at the port of Boston for investigation by him, and he reached a conclusion different from that attained by the Customs officials at New York. He reported that the article was "refined bauxite," which is merely the crude bauxite of commerce, with the impurities of iron and silica removed, and unchanged in chemical properties.

The importers make the claim in each of the cases that the merchandise is exempt from duty under paragraph 501 of the New Tariff Act, which enumerates in the free list "bauxite of beauxite." In two of the cases the additional claim is made that the article is dutiable at 20 per cent. *ad valorem*, under Section 4 of said Act, as a non-enumerated manufacture.

On the hearing of the cases the testimony was conflicting, especially that relating to the chemical constituents of the mineral or clay known as "bauxite." On this particular point the Board was enlightened by the testimony of Thomas M. Drown, professor of chemistry in the Massachusetts Institute of Technology at Boston, and of John H. Wainwright, analytical chemist in the United States laboratory at the appraisers' department in New York, who were orally examined on the hearing of the cause. They both agree in the view that the mineral known as "bauxite" is a hydrate of alumina, being a chemical combination of alumina and water, and usually containing silica and iron as its principal impurities.

The former, however, asserts that bauxite appears in the form of both a dihydrate and trihydrate of alumina that is chemically combined in the proportion of 2 parts of alumina to 2 parts of water, and also of 2 parts of alumina to 3 parts of water. The latter maintains that bauxite chemically contains only two parts or equivalents of water, and is therefore only found in the form of a bihydrate, and that the article under consideration contains 3 equivalents of water, being a trihydrate, and is not for this reason, in his judgment, the mineral known as "bauxite" or "beauxite." The whole difference in dispute, in its chemical aspects, is thus reduced to a single equivalent of water in the composition of the article in question.

The Board makes the following findings of facts in the second cases:—

(1) The merchandise under consideration is a white mineral powder, resembling pulverised alum in appearance. The accompanying sample is a correct representative of the several importations.

(2) It is, chemically considered, hydrate of alumina, or alumina and water combined.

(3) It is known, and dealt with in trade, under the name of "refined bauxite," and differs from crude bauxite only in the fact that it has gone through a process of manufacture by which the impurities of iron and silica have been mechanically removed from the crude article.

(4) It is used for the same purposes as the crude bauxite, namely, for the manufacture of alum or aluminous product, such as the sulphate of alumina or alum cake.

(5) We further find that the article is refined bauxite, which is nothing more than crude beauxite, with the impurities of iron and silica removed, without affecting the chemical composition of the article or its chief utility. There are samples of this mineral found in nature, which are about as free from impurities as the refined article, and a trihydrate may be reduced through the application of heat to a dihydrate by the expulsion of an equivalent of water.

We hold that the merchandise is free of duty, under paragraph 501, as "bauxite or beauxite."

The basis of this decision, we may add, rests on the principle often recognised by the Department, that where an article is specified in the free list, without terms of limitation, such article is exempt from duty, irrespective of the condition in which it is imported, unless the changed condition affects its commercial designation, or the tariff law otherwise provides.

The protests are sustained, and the collector's decision is reversed in each case. He is instructed to reliquidate the entries, as required by law.

AUROLENE AND AUROLENE A—COAL TAR COLOURS.

In the matter of the protests of Read, Holliday and Son, against the decision of the collector of customs at New York as to the rate and amount of duties chargeable on certain aurolene, imported per the vessels and on the dates named in the schedule, the following is the opinion by General Appraiser Lunt:

We find (1) that Messrs. Read, Holliday and Son imported into the port of New York in the year 1892 certain so-called aurolene, as shown in the schedule, and duty was assessed thereon at 35 per cent. *ad valorem*, under paragraph 18, N. T., as a coal tar colour or dye.

(2) That said merchandise was invoiced as aurolene and aurolene A, and that the dominant and characteristic element thereof is derived from coal tar; that said aurolene is a chemical compound and a coal tar preparation, a colour or dye, and is not an extract or decoction of dyewood.

The importers claim that said merchandise is dutiable at seven eighths of a cent. per pound, under paragraph 26, N. T.

We hold that said merchandise was dutiable at 35 per cent. as assessed, and overrule the protests.

ACETATE OF COPPER.

In the matter of the protest of A. Klipstein, against the decision of the collector of customs at New York as to the rate and amount of duties chargeable on certain so-called "verdigris," imported per Olympia, April 25, 1892, the following is the opinion by General Appraiser Lunt:

We find (1) that Mr. A. Klipstein imported into the port of New York, April 23, 1892, certain merchandise upon which duty was assessed at 25 per cent. *ad valorem*, as a chemical salt, under paragraph 76, N. T.

(2) That said merchandise is acetate of copper and a chemical salt, and is not sub-acetate of copper or verdigris.

The importer claims free entry under paragraph 749, N. T.

Upon our findings the protest is overruled.

TIPS FOR TRADERS.

BREWING PLANT and chemicals for brewers are likely to meet with a good reception with traders in the Caucasus. Breweries are on the increase, while the consumption of beer is growing. There is ample room for improving the quality of the beer made, while competition by the introduction of foreign beer is minimised by hostile tariffs. The Russians, who are not connoisseurs, are, however, by no means satisfied with the beer as now made in the Caucasus. Barley can be obtained in abundance.

SULPHUR to the extent of some 20,000 pounds per annum (pound—36 lbs. avoirdupois) is produced at Daghestan, despite the crude methods employed to obtain the sulphur from the ore.

GLAUBER SALTS and common salt are also made in Caucasia, to the extent of 300,000 pounds and 2,000,000 pounds respectively per annum.

CHEMICALS and laboratory apparatus will be wanted in China in small quantities now, as a laboratory (more particularly for the analysis of ores and coal) has been opened at Wuchang. Owing to the increased number of students a mining and engineering section has been opened within the last few months, and courses of instruction in chemistry and physics inaugurated.

MICA is found in as many as seven districts in British India. The mines in the Sipi and Singha Hills have an output of some 93 tons per annum, valued at 87,000 rupees.

LAVENDER has been found in South Australia in the swamps. When cultivated, two or three tons of the green stuff will yield lavender oil worth £100, and 16,000 lbs. of lavender water worth 8d. per pound. The soil is admirably suited to the growth of the lavender plant. Efforts are being made to start the distillation of the lavender in Adelaide at the beginning of next year.

TARIFF CHANGES.

There are from time to time many alterations in the customs regulations abroad, which it is as well for those trading in chemicals, paints, oils, and raw materials, to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

LIQUID PARAFFIN, a distilled oil, distinct from what is known commercially as paraffin, is dutiable at 25 per cent. *ad valorem* under the New Tariff Act of the United States.

COTTON PULP, bleached and intended for filtering purposes, is also dutiable at 40 per cent. *ad valorem*.

NOIR SOLIDE, a dye prepared from logwood and salts of chromium and alumina, by means of acid, not being a simple extract, is subject to a duty of 25 per cent. *ad valorem*.

TOLUIDINE SULPHO ACID, or thiochromogen, is dutiable at 18 per cent. *ad valorem*; while Toluidine base, bi-nitrotoluol, and naphthionate of soda are all subject to a duty of 20 per cent. *ad valorem*.

Foreign Trade Returns.

(Compiled for the JOURNAL from Official Sources.)

THE following is a monthly review of the export and import trade of foreign countries in chemical and allied products such as are produced in the United Kingdom. The actual amount exported by, and imported into Great Britain, being specified where possible.

GERMANY.

According to the returns of the Government Statistical Department of Foreign Trade for the month of Nov., 1892, the exports and imports (expressed in 100 kilos.) of the various selected articles undermentioned were as follows:—

Class.	Imports.	Exports.
	100 kil.	100 kil.
Ores and cements	2,613,423	2,788,987
Vegetable oils, fats, etc.	564,644	114,833
Paper and paper goods	67,426	130,819
Petroleum	1,129,816	3,719
Coal and other fuel	12,110,301	10,615,317
Tar, pitch, etc.	170,793	43,246

The total weight of the exports and imports for November shows a decrease as compared with the same month in 1891. The total imports for the eleven months, January to November, show an increase, while the total exports for the ten months were 376,275,200 kilos. less than in the same period of 1891.

AUSTRIA-HUNGARY

The following are the returns of the *Statistische Übersicht* for the first eleven months of 1892 (January to November). In the undermentioned imports every item, including "Chemical Substances," shows an increase, while in the exports, gums and resins and chemical substances are the only two items which show an increase as compared with the same period in 1891. The total exports and imports as compared with the corresponding period of last year show a decrease in both cases.

Class.	Imports.	Exports.
	Metric Centners.	Metric Centners.
Seed oil, etc.	267,776	4,792
Minerals	3,785,807	6,738,887
Dye and tanning stuffs	432,589	598,501
Gums and resins	345,624	158,048
Minerals, oils, etc.	1,374,692	21,824
Chemical substances	665,303	265,298
Chemical products	67,742	82,256

A Metric Centner is about 94 lbs. Avoirdupois.

INDIA.

The following is a *résumé* of the official returns published by order of the Governor-General in Council, and represents the imports of foreign merchandise into India, and the exports of Indian manufacture and produce, for the month of October, 1892:—

Imports:

Class.	Quantities.	
Salt	tons.	32,0
Quicksilver	lbs.	68,2
Alum	cwts.	1,7
Arsenic	cwts.	
Bicarbonate of soda	cwts.	2,0
Chemicals for paper making.....	rupees.	53,5
Sulphur	cwts.	7,3
Quinine	lbs.	4,1
Aniline and alizarine dyes.....	oz.	5,769,6
Mineral oils	galls.	2,785,8
Linseed oil	galls.	12,7
Gums and resins	cwts.	13,6
Manures	tons.	
Pitch, tar and dammer	cwts.	6,2
Dynamite and other explosives....	cwts.	1
Cement	cwts.	27,1
Candles	lbs.	423,0
Paints and colours	cwts.	9,1
Soap, all kinds	cwts.	5,2

Exports:

Class.	Quantities.	
Cinchona bark.....	lbs.	32,8
Cutch	cwts.	8,8
Indigo	cwts.	2,3
Myrabolams.....	cwts.	21,7
Turmeric	cwts.	3,6
Castor oil.....	galls.	241,14
Cocanut oil	"	58,5
Borax	cwts.	87
Caoutchouc	"	2
Mica	"	49
Saltpetre	"	17,21
Shellac	"	5,22
Oil cake	"	36,09
Soap	"	41
Musk	ozs.	5

In the above mentioned, out of the sum total for each item, following quantities were either shipped from, or sent to the U.K.:

Imports.—Of salt, 14,808 tons were sent from the United Kingdom and 5,701 tons from Germany. Quicksilver, 59,345 lbs. were sent from the United Kingdom. Petroleum: all Petroleum has its flashing point at or above 200° F., and is proved to the satisfaction of the customs collector to be intended to be used for the baling of jute and other fibre, or for lubricating purposes is *free of duty*. Out of the 13,980 cwts. of gums and resins, 4,156 cwts. were sent to the U.K. Of paints and colours 6,750 cwts. were sent from the United Kingdom.

Exports.—Of cutch, 8,753 cwts. were sent to the United Kingdom of indigo, 1,886 cwts.; myrabolams, 17,057 cwts.; turmeric, 1,764 cwts.; castor oil, 122,161 galls.; cocoanut oil, 43,067 galls.; caoutchouc, *nil*. Of saltpetre, 2,005 cwts. were sent to the U.K., and 1,770 cwts. to U.S.A. Of shellac, 1,770 cwts. were sent to the U.K., 3,171 cwts. to the U.S.A., to France *nil*, and 282 cwts. to other countries.

The total value of the exports and imports for October shows an increase as compared with the same month of 1891, while a comparison of the total value of the imports and exports for the seven months April to October, 1892, with the same period in 1891 shows a decrease in both items.

LIQUID AIR.—Last week Professor Dewar gave a lecture illustrated with experiments describing his recent work on the liquefaction of gases at the Royal Institution. The Prince of Wales, Duke of Cornwall, and other nobility were present along with a number of other distinguished personages. After the lecture the Prince of Wales thanked Professor Dewar for his lecture, and congratulated him on the success of his researches. His Royal Highness also referred to the liberality of the Goldsmith's Company who had contributed the money to support the researches to a large extent.

Legal Intelligence.

SALFORD HUNDRED QUARTER SESSIONS.

THE MERSEY AND IRWELL JOINT COMMITTEE v. THE BURY CORPORATION.

(Continued from page 129.)

THE CASE FOR THE DEFENCE.

His Honour: You contend that the Act of 1892 was a general Act?

Mr. Gully: Yes. Supposing that in the town of Bury, or any other town in England there had been a particular right conferred upon a particular tenement, by Act of Parliament, that the tenement should not be subject to paying the water rate. Perhaps it might be a place upon which a well had been allowed to be sunk on condition that that particular piece of property should be free from the water rate. And then supposing that they had a water rate enforced, saying that the tenements in the borough should be liable to paying water rates for the water supplied—that would be general legislation, and the Act of Parliament or section which declared the particular tenement would be free would be special legislation although both would be local in the sense that both covered only one town. But they would not assume that the general legislation was repealing the special legislation. He urged that this was the case here. The Mersey and Irwell Rivers Pollution Act was an Act dealing with a considerable area by way of general legislation, and it did not abrogate the right of a particular person, where it was the particular person whose particular tenement exercised the rights under the Act of Parliament. It would seem an extraordinary thing if an Act of Parliament given him in that way were taken from him by a general Act of Parliament without his being compensated in any way. That was what he said as regarded the nature of that case. What were the words of the Act of 1892 or 1876? He quite agreed that the words of section 3 of the Act of 1876, and of section 3 of the Act of 1892, were enough to cover the case of Bury's sewage discharge into the river Irwell. But that was not the point. They were discussing the question of whether the Acts repealed previous legislation or not.

His Honour: If no Act of 1846 existed, clearly you are within this Act. Therefore the question comes: Are you protected by the 1846 Act?

Mr. Gully: And also looking at the matter apart from the question of special legislation, the latter Act would repeal the former if the former were a general Act.

His Honour: You contend that the Mersey and Irwell Act of 1892 is a general Act.

Mr. Gully: I say it is a general Act. The court had not got to consider whether it covered all England, or Scotland, or Ireland. In the one case they had a special Act giving a special right to a special individual, and in the other case they had a general Act giving powers to deal with all individuals inhabiting a certain large area which happened to include the Corporation of Bury. The court had to consider the nature of the legislation and not the precise area over which it dealt. He was leaving out the Act of 1876 because it was the same thing over again.

His Honour: It is nearly of the same language.

Mr. Sutton: There is a very considerable difference between the language of the two Acts.

His Honour: Very little.

Mr. Sutton: Very considerable.

His Honour: Is there?

Mr. Gully: I want to point out some of those little differences. There is some difference in their power.

His Honour: I thought there was very little difference.

Mr. Gully apprehended the rule to be this: that they must gather from the general Act—assuming that that was a general Act—if the general was to repeal the special Act, that there must be something particular in the general Act to show that there was obviously an intention to take away the special right given by special legislation. He contended that did not exist in this case. There was in the general Act nothing more than the general words which were intended to cover the General Acts, otherwise every general Act would repeal special Acts previously given by special legislation. It was not to be inferred from the mere general language. They must have some particular words to show. The words there were that every person who knowingly permitted sewage to flow in was deemed to have committed an offence against that Act. The inference was that "every person" must be considered, every person not already protected by an existing Act of Parliament unless they could show a special provision taking away that right. The Act of 1876 did contain some restrictions which were not contained in the Act of 1892, but the restrictions referred to there were not

restrictions in the sense of special legislation in favour of particular boroughs which prevented them from dealing under the Act of 1876 with the sewage of those boroughs. There were other restrictions to which the words of the Act of 1892 would apply, and it was to those restrictions the words should be applied by the court.

His Honour (quoting): "And whereas the polluted and filthy condition of the rivers Mersey and Irwell and their tributaries urgently requires improvement, and with that view it is desirable and expedient to confer such powers on the general committee as to make such provisions as are in this Act mentioned."

Mr. Gully, continuing, said the general object of that Act was to improve the condition of those rivers. The general powers were for those purposes. The question was whether in giving those general powers they had repealed special powers previously given. There were restrictions in the Act of 1876 which were done away with in the Act of 1892, the most important of which was that in the Act of 1876 if a manufacturer was polluting the river he could compel the sanitary authority of his district to carry out a preliminary inquiry as to whether there should be a prosecution before the prosecution was instituted. That employer might be an important personage in the district, and might be able to raise a very strong feeling against that particular employer being prosecuted, and his works perhaps stopped, and, therefore, if they had that restriction put before the Sanitary Authority could prosecute, the manufacturer could insist upon the inquiry and the authority voting upon the question. One of the objects was to get rid of the local institutions and give a free hand to a board not hindered by local restrictions. That in itself was a vital restriction in the working of that Act. Under the 1892 Act prosecutions in the Mersey and Irwell district might be instituted without the interference of the sanitary authority. Another difference was that under the first Act they could only go to the County Court and get an order made and get a certain time stated in which the nuisance was to be done away with. By the Act of 1892 they could go to a court of summary jurisdiction and get a penalty inflicted without going to the County Court. There were other ways in which the working of the Act was simplified, and the restrictions which existed upon the general Act being put in force were removed in the Mersey and Irwell district, and therefore there was no reason why that preamble should be applied to the removal of the restrictions contained in local Acts. Mr. Gully then went on to quote the opinion of Lord Selbourne in the case *Seward v. Vera Cruz*. There were general words following in the later Act which were capable of reasonable and sensible application without extending them to the abrogation of the privilege which was given before by the Act of 1846. After quoting the opinion of Lord Justice Turner in the case of *Garnett v. Bradley*, and Justice Jenkins in *Granville's case*, Mr. Gully remarked that if his friend said that the Act of 1892 was a private Act he should say that a private Act repealing a public Act would be still more difficult, except by specific enactment. Upon these grounds he submitted that this appeal ought to be allowed.

Dr. Pankhurst: I wish to be allowed to say a word upon a point of law only.

Mr. Sutton: You have no power for two counsel to address the court in Quarter Sessions.

His Honour: It has not been the custom of Quarter Sessions.

Mr. Sutton: I have a few observations to make.

His Honour: We don't want to hear you.

Mr. Sutton: Very well, sir.

THE DECISION.

His Honour immediately proceeded to give judgment. He said the appeal was of a very important nature, and therefore they thought in that case they must give their reasons for their judgment, for they were all unanimous upon that judgment. As far as he could gather, it appeared that the Mayor, aldermen, and burgesses of the Borough of Bury were summoned, at the instance of the Mersey and Irwell Joint Committee, for having on various dates between the 5th and the 20th September, 1892, caused or permitted to fall or flow into certain rivers, to wit, the Irwell and Roach, being rivers within the jurisdiction of the Joint Committee, of liquid sewage matter, contrary to the provisions of Section 3 of the Act of 1892. That was an offence for which the Corporation were summoned by those two summonses before them, and the justices below convicted the Corporation upon the ground that they had committed an offence under the meaning of Section 3 of the Mersey and Irwell Joint Committee Act, 1892. Now it was very important to notice the language of that Section of the Act of 1892. It said, "Every person who causes to fall or flow, or knowingly permits to flow, or to be carried into any river or stream"—and now he drew attention to these words particularly—"within the jurisdiction of the Joint Committee, any liquid sewage matter, shall be deemed to have committed an offence against this Act." The words which he drew attention to particularly were, "Within the jurisdiction of the Joint Committee." Well now, in the preamble of that Act Mr. Gully called his (His Honour's) attention to one recital, but it must be borne in

mind that there was another very important recital, in which he (His Honour) drew Mr. Gully's attention at the time. And thereupon the preamble set forth that it was in consequence of the filthy condition of the rivers Mersey and Irwell, and their tributaries within the jurisdiction of the Joint Committee, that they asked Parliament to make such provisions as were in that Act mentioned, and whereas the polluted and filthy part of the said parts of the rivers Mersey and Irwell and their tributaries required improvement, it was thought desirable and expedient to confer such powers upon the Joint Committee, and to make such provisions as were in that Act mentioned. What was the jurisdiction of the Joint Committee? It was defined in the Local Government Board's Provisional Confirmation Order of 1891. The Joint Committee, on which Bury was represented, were empowered to enforce the provisions of the Rivers Pollution Act, 1876, in the places mentioned as being situated on the Mersey and Irwell, which passed through the county boroughs of Bury, Bolton, Manchester, &c. The Joint Committee had complained to Parliament that they had not sufficient power with regard to those two rivers, and asking that, owing to the filthy and polluted condition of the two streams, they should have more powers than they had. At that time they had two powers contained in the Rivers Pollution Act, 1876, as he had said, and no more; and, as they asked for more, the Act of 1892 was got, containing the Section under which the conviction had been obtained. Mr. Gully then said, on behalf of the Corporation—and he had addressed them very properly at great length, because it was an important matter—"We justify this; we have got an Act of Parliament of 1846, one Section of which (the 102nd) we set up as a justification for what we have done." The Bench were not giving judgment on a matter of fact on any evidence given; they were going simply on the construction of the Statutes as to whether there was an implied repeal.

They did not think the other was a matter to adjudicate upon at all. If nothing else had happened, and no subsequent Act had been passed, it was very likely that under section 102 of the Bury Improvement Act of 1846, it might have been successfully set up that the Corporation of Bury had a right to do what they had done. Clearly power was given at that time to do what the Corporation had done. But it was 46 years ago. The Rivers Pollution Act was passed in 1876, and the Joint Committee which was appointed to carry out that Act for that particular district in which Bury was situated, complained to Parliament that, owing to the filthy and polluted condition of the two rivers which passed through Bury and the other places within the jurisdiction of the committee, they had not power to deal with them. Then Parliament granted the 1892 Act, which was not, in the opinion of the court, a general Act, but a special Act. Although there was no expressed repeal, there was an implied repeal of section 102 of the Act of 1846, relied upon by the corporation. That being so the Bench did not think it necessary to give an opinion upon any question of evidence there at all, but to say whether in their judgment there was an implied repeal. The court thought there was such a repeal. This was an irresistible conclusion, because it was so entirely inconsistent with the language of the other special Act that the two could stand. The 1892 Act overrode and repealed section 102 of the Bury Improvement Act, 1846. For these reasons the judgment of the court was that the appeal be dismissed with costs.

Mr. Gully: That applies to both summonses—to both appeals?

His Honour: To both summonses.

Mr. Gully asked that a case should be stated for the corporation.

His Honour: We will consider it, Mr. Gully.

Mr. Sutton: I strongly oppose it.

His Honour: We will tell you when we come back from luncheon.

Mr. Gully said the case was very important to the Bury Corporation, and it might be important to other people also. It could, however, be very shortly put before the court above.

His Honour repeated that the decision would be announced after the adjournment for luncheon.

When the court sat, half an hour later, His Honour informed Dr. Pankhurst that the Bench had unanimously decided not to state a case.

DETERMINATION OF CRUDE CARBOLIC ACID.

By G. SCHACHERL.

THE usual commercial method of determining the value of crude carbolitic acid is to determine the solubility in caustic soda of sp. gr. 1.2. That this process does not give reliable results has already been frequently proved.

A better plan is to adopt the following method: 100 cbc. of the poorer kinds of carbolitic, which are only slightly soluble in caustic, or 50 cbc. of the better kinds, which dissolve to the extent of at least one-half, are employed. The measured carbolitic acid is twice shaken in a separating funnel with 100 cbc. of caustic soda of sp. gr. 1.1, and then three times in addition with quantities of 50 cbc. (The alkaline liquid

obtained in the last shaking should give no oily drops on the addition of hydrochloric acid.) The different extracts are united in a flask of about 1 litre capacity, and contain all the phenol, small quantities of hydrocarbons and more or less resins. The liquid is diluted with an equal volume of water and distilled until no more oily drops pass over and the distillate appears perfectly clear; the hydrocarbons are thereby removed. The contents of the flask are then allowed to be acidified with commercial hydrochloric acid, and again distilled, a Leibig condenser being employed. The phenols pass over and are dense along with the water in the receiver. When about 20 per cent. have come over the distillation is interrupted, the water which has passed over poured back into the flask, and the phenol brought over by a graduated cylinder. The distillation is then repeated, any oil which passes over being added to that in the cylinder, and this is done until no more oil passes over with the distillate. The final distillate, which amounts to about 60-70 cbc., is saturated with common salt, and the phenol which separates out measured, and its amount added to the already obtained in the cylinder.

The following numbers show the difference between the results obtained by the commercial method and those given by this method, the numbers in parentheses being those obtained by Schacherl's method: 35 (25) %, 52 (48) %, 53 (47) %, 70 (66) %, 100 (74) %, 100 (97) %, and 100 (98) %. The commercial method, therefore, always gives a larger amount than is really present.

Ztschr. Osterr. Akad.

Reports of Companies.

THE NORTHFLEET WHITE LEAD CO., LTD.

An extraordinary general meeting of this Company was held on Thursday last week. The chairman, Mr. J. J. Atkinson, addressed the shareholders, said: "Gentlemen, you are aware that a circular was sent to every shareholder to subscribe for 10 per cent. preference shares, and the Board regret to say that the response was not sufficient to warrant the directors going to allotment. They, therefore, decided that the only course was to wind up voluntarily with a view to the reconstruction of the Company, as set out in the resolutions which I presume, you have all read. The scheme for reconstruction has now been explained to you. The Board has suffered as acutely as you, more so than other shareholders from the difficulties which have arisen, one after another, while we were working untiringly to do our part in the process; and, encouraged by the confident promise once the process was shown to be workable on a commercial basis, we could command any reasonable amount of fresh capital, we decided to expend the last available funds in perfecting the process, and in the machinery and plant able, by adaptation and additions, to carry out the manufacture with certainty and efficiency. This we succeeded in doing. As I have already told you, it was only after a long and when all our mechanical difficulties had been overcome, we found the promise of further capital had not been fulfilled. We can regret more than the directors the state of affairs thus far, but about, and they do not think they can be blamed for their part. Their interest in the Company is very large, and identical with that of all the shareholders. After careful consideration, we believe the wisest policy is to face the facts. Here we have a fine process, of turning out a splendid quality of white lead, and requiring only a small further outlay on litharge furnaces, and on the duplication of carbonic acid gas and minor plant, to be in a position to turn out 3,500 tons of stuff in a year, which we believe will give a profit of 50s. a ton, and a market for all that we can make, and one of considerable extension; but this we find it impossible to do with the existing company. There is, therefore, no other alternative but the liquidation of this Company and the formation of a new one on the lines indicated in the resolutions contained in the circular which I have just read to you. I need not say that since we last met you in this room the directors have passed an extremely anxious and trying time, and the opportunity here of thanking Mr. Barclay Heward, our managing director, for the assistance he has rendered us in our difficulties. He is a gentleman of considerable financial experience, and he has been of much service to us. We have, therefore, suggested to you that you should act as a liquidator with our managing director, Mr. Barclay Heward. With regard to the fitness of the latter gentleman for the office of liquidator, I think you will agree with me that, from his knowledge of the Company and from the manner in which he has thrown his energies into its business, and also from his appreciation of the value of our process, we could not have a better man. He has worked hard and I had almost said night, to help the Company, and no more about making white lead by our process than he does. The members of the Board are confident of the success of such a reconstruction of the Company as it is proposed to make, otherwise they would not have suggested it."

recommended its formation. We have, therefore, taken upon ourselves financial responsibilities to bring the Company through its troubles, and to smooth the way for the new Company, thus showing our belief—in further proof were required—in its prospects. We appeal to you to pass the various resolutions in your hands, and beg that you will not allow it to remain there, but come into the new scheme by subscribing for the preference shares.

After the draft of the proposed agreement had been read, the chairman put the following resolution: "That it is desirable to reconstruct the Company, and accordingly that the Company be wound up voluntarily, and that Henry Osborne White and Spencer Barclay Heward be, and they are hereby appointed, liquidators for the purpose of such winding up."

After some discussion this resolution, which was seconded by Mr. Ewen, was carried with only one dissident.

Mr. White, while speaking of the general soundness of the proposed scheme, said he wanted them to recognise that this was a genuine effort to rescue a good business from failure and not regard it as an attempt made in a gambling spirit to induce the shareholders to sink more money in a remote chance of recouping their losses. He did not know whether Parliament would do anything against the dangers of the "stack" process by making the regulations of the Factory Acts more stringent; but if they did so it would most certainly be to their advantage. Let him remind them that the passing of these resolutions meant only the liquidation of the company; but they must do more than that—they must put their hands in their pockets and put their shoulders to the wheel, to use a common metaphor, and pull the company through, and put it on a sound financial basis.

A brief description of a visit he had paid to the works at Northfleet was given by Col. Willan, and bore unqualified testimony to the excellence of the machinery and plant erected, and to the manner in which, under Mr. White and Mr. Hamilton, the works had been and are being carried on. He expressed his confidence in the ultimate success of the company, and reminded the shareholders that if that success were achieved they would be in possession of a very valuable patent.

The following resolution, which had been put to the meeting previously, was ultimately carried. "That the draft agreement submitted to this meeting, and expressed to be made between this company and its liquidators of the one part, and the Northfleet White Lead Works, Limited, of the other part, be and the same is hereby approved, and that the said liquidators be and they are hereby authorised, pursuant to section 161 of the Companies Act, 1862, to enter into an agreement with such new company, when incorporated in the terms of the said draft, and to carry the same into effect with such, if any, modifications as they may think expedient."

The meeting then terminated with the usual vote of thanks to the Chairman.

THE PHOSPHO-GUANO CO., LTD.

The annual general meeting of this company was held on Thursday, last week as announced, at the City Terminus Hotel, Mr. Thomas Chilton presiding. The chairman in moving the adoption of the report, stated that the profit for the past year had been £5,823., which was a good deal less than it had been for the past three or four years. The decline, however, was not in consequence of any falling away of their business, or anything connected with the accounts, except that owing to the very depressed state of things generally, and particularly of the raw material which they traded in, there was a very serious fall in price last year, culminating in a figure very much less than they had ever known before. Of late years they had kept their stocks very low, but when the price fell below what they had ever bought at before they increased their stock. This took away between £3,000. and £4,000. of their profit. There was, of course, a great advantage now in manufacturing at such a price, and he hoped that their profit for the current year would revert to what it had been for several years previously. In answer to questions which had been addressed to him by shareholders who were unable to attend the meeting, he stated that the quantity of phosphate rock included in the item of £57,818. stock on hand, was 17,300 tons, and stood in their books at the value of £27,500. If they returned the deposits at banker's to the shareholders it would only mean 10s. a share, and the position of the company would be greatly weakened by such a proceeding. In consequence of the strength which they at present enjoyed they received almost the first offer of raw material on the market, and it was their deposits which enabled them to hold this position. Mr. Peter M'Lagan, M.P., seconded the motion, which was adopted. The chairman afterwards proposed the payment of a dividend of 7s. 6d. a share, tax free. They had not, he pointed out, earned this dividend in the past year, but the shareholders would now see the advantage of having carried over a good sum in previous years. The resolution was seconded and agreed to.

Parliamentary Jottings.

LUBRICATING OILS IN THE NAVY.

IN the House of Commons, this week, Sir U. Kay-Shuttleworth stated in answer to Col. Howard Vincent, that the only oils considered suitable for lubricating the machinery of Her Majesty's ships are mineral oils distilled from American petroleum and olive oil, neither of which are British products. Compound oils are largely used in practice, but the compounding is done after the pure oils are purchased, and thus an economy is secured. The contract for the supply of mineral oil for the Navy for 1893-4 has been placed with the Dee Oil Company, a British firm. Olive oil is imported direct.

SAFETY LAMPS IN MINES.

Replying to Sir H. Roscoe, Mr. Asquith said his attention had been called to the safety lamp invented by Professor Clowes, and it was at present under investigation by the mines' inspectors.—(*Vide* current issue, p. 142, Ed. C.T.J.)

Last week a new Bill was introduced by Sir John Lubbock, to confer additional powers on Boards of Conciliation and Arbitration.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the city of London for the week ending February 18th, 1893, was very good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'41	12'79	0'19	Nil.
South Metropolitan Gas Co.	6	16'53	9'63	0'4	Nil.
Commercial Gas Co.	2	16'50	7'80	0'1	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

E. C.—It has been forwarded.
C. K.—Thanks for notice.
F. B. (Paris)—We have done as you wished in the matter.
J. S.—It was an oversight.
W. A. V.—It was overdue, and therefore has been stopped.
R. H.—Fuller's earth is about the best thing you can try.
S. B.—Not always. Some contain little, if any. Buy from a maker of repute.
NATRIUM.—(1) Chiefly to the United States. (2) Almost every week.
W. O.—Reply has been forwarded by post.

Trade Notes.

THE COMMERCIAL GAS CO'S DIVIDEND.—Subject to audit of the accounts of the Commercial Gas Company for the half-year ended December 31, 1892, the directors will recommend dividends at the rates of 12½ per cent. on the old stock, and 9½ per cent. on the new stock.

RECOVERING AMMONIA FROM BLAST FURNACE GASES.—The blast furnaces of the Clyde Iron Works have been damped down so as to allow of the necessary connection with new ammonia plant being made. The ammonia recovery plant has only been constructed recently. The alterations will, it is anticipated, take about three weeks in completing.

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—On Wednesday last, March 1st, a meeting of this section was held in the chemical laboratories of the University College, Brownlow-street, when papers were read by F. Hurter, Ph.D., on "Coke towers and similar apparatus," and by Messrs. T. L. Bailey, Ph.D., and P. H. Jones, on "The pink colouration of calcium chlorate liquor." Tea was served in the museum of the college from 7 to 7-30 p.m.

SOCIETY OF CHEMICAL INDUSTRY: London Section.—The next meeting of this section will be held on Monday, March 6th, 1893, at Burlington House, when the following papers are down for reading:—"A convenient form of experimental apparatus for filtrations and other determinations," by Mr. C. C. Hutchinson; "The composition of the petroleum-like bitumen of Japanese coal," by Mr. Watson Smith; discussion on Mr. Warrington's paper on "The detection and estimation of lead in citric and tartaric acids."

THE SALFORD IMPROVEMENT BILL.—The time for petitioning in the House of Lords against the Salford Improvement Bill having expired, it is found that twelve petitioners have deposited petitions praying to be heard in opposition to the bill. Some of the petitioners were mentioned last week. In the complete list as it now stands are the Corporations of Manchester, Heywood, and Rochdale, the Local Boards of Little Lever and Turton, the Bury Union Rural Sanitary Authority, the Mersey and Irwell Joint Committee, the Manchester Ship Canal and National Telephone Companies, the United Association of Bleachers, Messrs. Andrew Knowles and Sons, Limited, and Mr. Edward Harrison.

COLLAPSE OF A CHIMNEY STACK.—During the severe gale which prevailed at St. Helens during Thursday night the chimney at Greenbank Alkali Works, which was more than 300 feet high, and one of the finest in Lancashire, literally collapsed to the foundation. The acid condensers and vitriol chambers, along with the process tanks, were wrecked, and several sheds were completely demolished. A portion of the roof of the adjoining rope works of Messrs. Glover and Co. was also destroyed. A vast quantity of vitriol ran to waste, and for a time great alarm prevailed. Over 50 men were at work in the various departments, and miraculously escaped injury. Only one man named Highcock employed in firing the boilers at the foot of the chimney was injured, his leg being hurt by falling bricks. The total damage is estimated at £8,000., and over 200 men have been thrown out of employment.

TRIAL OF A PETROLEUM LAUNCH.—Several trials of the launch Petrol were made recently at Brunswick Dock, Liverpool. The pressure in the oil tank is about 12lb., and the oil itself, when the vaporiser is hot enough, is discharged by means of what is termed the spraymaker, in very fine jets, which are mingled with a sufficient and well-regulated quantity of air, and then thrown into the vaporiser. The mingled air and gas formed by the petroleum jets is then drawn in, compressed, and ignited, producing the slightest explosion, which starts the engine. The regularity of the explosion is maintained by the aid of a small battery, from which an electric current is passed along two wires which run through a plug screwed into the clearance space at the end of the cylinder, and the electric spark passes between the terminals of the wires inside the cylinder. This means of ignition has not yet been known to fail. The circuit is completed at the end of each compression stroke.

CHEMICAL WORKMEN AND DISEASE.—We, the *Daily Chronicle* can scarcely congratulate the scientists of the University College Chemical Society upon certain aspects of their annual meeting. The subject to be considered was the diseases incident to workpeople in chemical and other industries, Mr. Watson Smith being the lecturer. But the real object of the meeting turned out to be a demonstration on behalf of the United Alkali Company, by way of protest against the articles which have appeared in our columns. The more criticism the better, and by all means let it be scientific. But is it worthy of a scientific society to afford cover for those against whom grave charges have been made of neglecting the health and safety of their workmen? For what other construction can be put upon a meeting—presumably of students—which the magnates of the United Alkali Company thought it worth their while to come down from Liverpool to attend? Mr. Carey, we are told, protested against "the exaggerated statements that had been made in the newspapers." The majority of our readers will be ignorant of the fact that Mr. Carey is the secretary of the United Alkali Company. Mr. Muspratt made some grotesque statements as to the methods of inquiry pursued by our Commissioner, who by the way had made an exhaustive inquiry into the alkali industry both at St. Helens, Widnes, and Tyneside prior to his recent visit to Lancashire—and Mr. Muspratt, if you please, is one of the directors of the United Alkali Company. Mr. Watson-Smith, we understand, used to be the manager of an alkali works, and he may have fancied the presence of his old friends on this important occasion; but the public are, at least, entitled to be enlightened as to the personnel of the University College Society.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is in a very quiet way and matters be going from bad to worse. 90's benzol is certainly worth more than 1s. 7d. in London, and perhaps 1s. 6d. Liverpool or Godalming less, while 50/90's is not worth more than 1s. 4d. to 1s. 5d. These low prices, with the probabilities of still lower values, must have great influence upon the price offered by tar distillers' gas companies for their tar, and the question is again becoming vital importance as it was towards the close of 1885.

The sulphate of ammonia market is very firm indeed. It is expected that after the close of February values would ease off, and speculators who had oversold themselves at low prices felt of being able to obtain their covers at lower rates than were ruling. This, apparently, is not happening, for the full prices were accorded during the last days of February are still being paid for prompt parcels, nor does the demand show any signs of falling. It may therefore be expected that prices will continue to rise. Beekton is now £11.; outside London makes £11. 2s. 6d. to-day's price at Hull and Leith is certainly not less than £11. The country ports have very few sellers.

REPORT ON MANURE MATERIAL.

Throughout the week the market has been quiet, and prices remained without material alterations.

Florida phosphate rock, 75/80%, offers at 8d. per unit in cargo to United Kingdom. Peace River rock at 7d. per unit, and dried South Carolina River rock at 6½d. per unit, without much business. Continental phosphates are not much enquired for, there is no alteration in values to note.

We do not hear of any business in River Plate cargoes of boned nominal value being £4. 2s. 6d. United Kingdom or Crushed Kurrachee bones offer at £4. 2s. 6d. ex quay Liverpool shipment, and £4 1s. 3d. is probably the nearest value. There have been sales of East Indian bone meal at £4 2s. 6d. to £4 3s. 6d. ex quay Liverpool, on spot and for shipment, the higher price being for closing values. Bone ash does not find a ready sale, the nearest being probably about £2. 15s. per ton.

Nitrate of soda is quiet, but steady. On spot 10s. regular ordinary quality, and 10s 1½d. for under 4% refraction. Due cargoes are worth fully 10s. per cwt., and December shipments 10s. 10d. according to sailing date. January shipments may be had at 9s. 6d. down to about 9s., according to sailing date, buyers being about touching anything to arrive after April.

Dried blood is much enquired for, and there are buyers of blood finely ground, at 11s. 9d. per unit, of ammonia, in double bag, Liverpool for export.

Superphosphate 26%, offers at 43s. per ton, in bags f.o.r. at

MISCELLANEOUS CHEMICAL MARKETS.

The export demand for bleaching powder is still active. There has been no change in prices during the past week, the quotation being £8. net f.o.r. makers' works, and £8. 10s. net f.o.b. in export. Chlorate of potash and soda are still scarce, and prices nominally 10d. per lb. for spot lots. Prices of alkali remain steady at quotations which have been ruling for some time past. Caustic soda, 77% Tyne, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 68%, £8. 10s.; cream, 60%, £8. 5s., 10 ton lots and upwards. Still rules from 1½d. to 1¾d. per degree f.o.b., and for alkali, 58%, 1½d. per degree f.o.b., is about current value. Market continues without alteration in recovered sulphur at £4. 5s. f.o.r. makers' works. Soda crystals are somewhat scarce. Sulphate of copper without improvement at £16. 5s. to £16. 10s. White powdered arsenic is in brisk demand for export, and the market is firm at £13. 10s. per ton at usual points. White lead steady and in moderate request at £26. per ton c.i.f. A soda £17. 15s. per ton, c.i.f. Brown acetate of lime still rules at £6. per ton in usual districts of consumption. Grey acetate in limited request at £10. 15s. per ton. In carbolic acid, cry liquid, there has been a slight lull in the demand, but the

material difference in price, and the market on the whole is firm. Potash, caustic and carbonate, are a slight turn in buyers' favour, but the demand is tolerably active. Nitrate of soda slightly easier for forward delivery, though there is a good request for spot supplies. Aniline oil and salt are lower in price, corresponding to the reduction in price of benzol. Bichromates of potash and soda are without change. Yellow prussiate of potash slightly easier. Sulphocyanides are in small request, but prices are at the lowest point. There is no improvement reported in general demand for chemicals in the manufacturing centres.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet. Scotch warrants closed at 40s. 6½d. cash. Middlesbrough 33s. 9d. cash, and Hematite 45s. 9d. cash. Copper firmer: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 16s. 3d. to £46. 3s. 9d. cash, and £46. 6s. 3d. to £6 13s. 9d., three months. Tin active. Straits closed at £91. 12s. 6d. to £92. 2s. 6d. cash, and £91. 17s. 6d. to £92. 7s. 6d. three months. Australian, £92 cash. English ingots, £95. 10s. Lead, firm; Spanish, £9. 12s. 6d. English £9. 15s. to £10. Silesian spelter: Ordinary, £17. 7s. 6d. to £17. 10s. Nickel, 1s. 9d. Antimony, £41. Quicksilver: First hands, £6. 7s. 6d., second hands, £6. 7s. Copper shares firm: Cape, 1½ to 1⅞. Copiapo, 2½ to 2¾. Libiola 3½ to 3⅝. Mason and Barry, 2⅞ to 2⅞. Rio Tinto, 15½ to 15¾; Tharsis, 4⅞ to 4⅞; Namaqua, 1 to 1¼; Panulcillo, ⅞ to ⅞.

WOLVERHAMPTON, WEDNESDAY.—Much satisfaction was expressed to-day that the vote at the Birmingham Conference for a coal trade holiday had been lost. Little prospect, however, appears of any reduction in coal prices. This renders the ironmasters' position very unsatisfactory. Prices keep at £7. 10s. for best bars, £6. to £6. 10s. merchant sorts, and £5. 10s. common. Sheets, singles, are £6. 15s., and doubles £7. 5s. Pigs slow; Derbyshire, 42s. 6d. to 44s., Northampton 40s. to 42s., Staffordshire common 35s., and best 60s.

GLASGOW, WEDNESDAY.—Market firm with moderate business. Scotch done at 40s. 7d. cash, also at 40s. 9d. one month; closing with buyers at 40s. 6½d. cash, and 40s. 9d. one month; sellers ask ½d. more. Middlesbrough closes with buyers at 33s. 9d. cash; sellers ask 34s. 3d. Hematite closes with buyers at 45s. 9d. cash; sellers ask 46s. 3d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil, which seems to have reached the zenith is now quiet. Price for Lagos being £32. sales are small. Olive is very firm and the business passing is good; prices are on the advance, though for the present they may be quoted £35. 10s. to £42. per tun. Linseed has been steady at 23s. per cwt. in export casks. It is somewhat weaker to-day at 22s. 9d. to 23s., but very slightly so. Cottonseed is quiet and prices have declined during the week considerably, Liverpool refined now being quoted 26s. to 26s. 6d. per cwt. Castor oil is steady, though owing to large arrivals good seconds Calcutta is now selling at 23½d. per lb. ex quay, and 2¼d. store. First pressure French is offered at 2¾d. per lb. Tallow is firm, and stocks and prices remaining in *statu quo ante* there is virtually no business doing. Resin, common, is quoted 4s., at which price it is firmly held. Spirits of turpentine are easier at 25s. 3d., and have been in fairly good demand at the price. Petroleum: American, 5d. to 6d., according to quality. Russian refined, 4½d. per gallon.

COLOURS.—Unaltered. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

There is no alteration to report in the market this week. Manganese: Arrivals are somewhat improved; but prices are unaltered. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) steady; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill

brand) is in strong demand, and large sales have been made; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals continue small, and prices firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, very scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland flat. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal is in strong demand, and prices are firm. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

There is nothing new to report in the chemical trade. Shipments are only moving off slowly, a large number of Continental ports being still closed owing to the protracted severe weather. Bleach, £8. 5s. per ton, softs, in demand. Soda crystals steady, price varies from £2. 5s. to £2. 12s. 6d. according to destination. Caustic soda and sulphur unaltered.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £7. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton net.

South Durham salt 9s. 1d. per ton, f.o.b. Tees.

Coals: The position at present is not at all reassuring. In addition to the threatened dispute in Northumberland, the Durham coalowners, it is stated, have sent in to the miners' agents a claim for a 10% reduction in wages. The question has to be submitted to the men. As far as trade goes there is a slightly better tone in the market. Best Northumbrian steam coals are firmer, price varies from 8s. 6d. to 8s. 9d. per ton, f.o.b.; small steam, 3s. to 3s. 3d.; gas coals, 6s. 3d. to 6s. 6d.; coke quiet, export price being 14s. per ton.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated Liverpool, February 17th, 1893, state:—

Charters for the past fortnight are advised as 2,000 tons. This quantity is owing to the low rate of exchange, which has been and is ruling in Chili, encouraging producers to sell forward. The total charters since 31st December are 3,000 tons. Same time last year the quantity was 3,000 tons. Exchange 16½d.

Since our report of the 3rd inst., about 7,500 tons G.M.B.'s and G.O.B.'s have been sold from £46. cash and £46. 10s. three months, down to £45. 3s. 9d. and £45. 12s. 6d. respectively, at which the market closes steady to-day.

The total stocks in Liverpool, Swansea, London, and Havre show an increase of 585 tons for the fortnight.

The stocks include about 4,000 tons of copper sold, but not yet delivered to smelters.

The visible supply shows an increase of 1,617 tons for the fortnight. The total deliveries for the fortnight are 4,595 tons.

The present stock of English G.M.B.'s in Warehouse, Liverpool, and Swansea, is 1,089 tons, against 1,240 tons on the 1st ult. The delivery in Liverpool and Swansea was 201 tons, making a decrease of this quantity for the fortnight.

The *Parkdale* has just arrived at Dunkirk with 1,750 tons fine Boleo matte, which is sold to the French smelters.

Refined and manufactured sorts are quiet. Quotations being:—Tough cake £48. to £48. 10s., best select £49. to £49. 10s., Indian sheets £53., strong sheets £57., and yellow metal sheets 4½d. per lb.

The sales of furnace material comprise—280 tons Australian copper ore (to arrive), Swansea, 9s.; 100 tons Australian matte, at 9s., ex ship side, London, for Swansea; 36 tons Chili ore, spot, Liverpool, at 8s. 10½d.; 200 tons Argentiferous leady matte, on private terms; 150 tons Columbian matte, at 9s. 7½d.; 177 tons Alosno precipitate, spot, at 9s. 3d. to 9s. 6d., according to produce; 100 tons Cueva de la Mora precipitate, at 9s. 3d.; 8 tons Cuban precipitate, at 9s. 3d.; and 190 tons Australian matte, ex ship, London, for Liverpool, at 8s. 10½d. per unit.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

For sulphate of ammonia as high as £11. has been paid under pressure of necessity and for immediate delivery; but buyers who can afford to wait a little are shy of the unusually high figure, and it is significant that the forward quotation is lower than that for prompt. It is generally accepted that it is a cornering manoeuvre that has been in operation, cleverly handled for the time, but not meant to last. Price at the moment here may be put at a shade under £11.

Paraffin scale and wax are largely in demand at the rates some time ago lowered, caused no doubt by the late sharp advance in stearine, tallow and other candlemaking rivals. Indeed, a rise in these solid paraffins would have taken place before now, but that the American producers have sold largely here and on the Continent at very low prices, and covering something like a year forward. The other paraffins are less firm, the call for burning oil for the season being well spent, and causing some makers to slightly lower the price; naphtha (paraffin spirit) also, is neglected, and offered ½d. to ¾d. down, while lubricating oils are stationary.

Except in bleach and chlorate the general chemical market remains dull, and feeling the ice-closing of the Continental outlets keenly. Bleach itself is perhaps hardly so firm, and quotes £8. 2s. 6d. to £8. 5s., according to conditions of delivery.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 2s. 6d. to £8. 5s. nett Tyne; saltcake, 28s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 9½d., less 5% Liverpool; nitrate of soda, 10s. 1½d.; sulphate of ammonia, £10. 18s. 9d. to £11. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¾d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales ½d. to 1d. lower); ditto (lubricating), 865°, £3. 10s., to £3. 15s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 22,950 bags.

New Companies.

Swinburne and Co., Ltd.—CAPITAL £25,000. in £5. shares. This company has been formed to carry on the business of chemical, electrical, and mechanical engineers. The subscribers to the Memorandum of Association are: J. Swinburne, 49, Queen's-road, Wimbledon, electrical engineer; B. R. Beale, Angel-lane, Northampton, electrical engineer; H. E. Sherwin-Holt, Oaklands, Teddington, electrical engineer; J. Holt, Farnbrook, Hants., Esq.; G. H. Kenyon-Slaney Bassett, Southampton, captain of the Durham Light Infantry; E. M. S. Kenyon-Slaney, Bassett, Southampton; H. Bostock, Walton Heath, Epsom, Gent.

James Macintyre and Co., Ltd.—CAPITAL £50,000. of £10. each. The object of this Company is to carry on the of the manufacturers of china insulators for electrical work addition to trade as smelters, oils and colourmen, paviors, & subscribers to the Memorandum of Association are: W. Burslem, earthenware manufacturer; C. W. Woodall, Burslem, manager; H. Watkin, Burslem, potter's manager; C. Wood Fitzjohn's Avenue, E.C.; H. Woodall, Llandudno, gentleman Redgrave, Muswell Hill, E.C., inspector of schools; C. E. Hanley, chartered accountant.

Hilton, Anderson, Brooks, and Co., Ltd.—CAPITAL £50. shares. This Company has been formed to take in going concern the business of Lime Burners and Portland Cement manufacturers hitherto carried on by Messrs. Hilton, son and Co. at various places in Kent and elsewhere. The subscribers to the Memorandum of Association are: W. C. Anderson, 6, Thames-street, E.C., cement manufacturer; E. W. Brooks, 7, Tower-street, E.C., cement manufacturer; E. F. Hilton, 6, Thames-street, E.C., cement manufacturer; G. K. Anderson, Upper Thames-street, E.C., cement manufacturer; H. W. Anderson, 6, Upper Thames-street, E.C., cement manufacturer; H. E. Anderson, 74, Great Tower-street, E.C., cement manufacturer; A. Brooks, Great Tower-street, E.C., cement manufacturer.

The Patent List.

This list is compiled from Official sources in the Mechanical and Electrical Engineering Department, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Smoke Consuming Apparatus. W. Crowther, A. Crowther, and F. C. 3,143. February 13.
Fire Extinguishing Apparatus. J. Longshaw. 3,149. February 13.
Manufacture of Cyanides. G. T. Beilby. 3,159. February 13.
Apparatus for Evaporating Saccharine Solutions, etc. J. A. M. J. Fromherz. 3,170. February 13.
Manufacture of Amidoalkylsalicylic Acid and Acetamidosalicylic Acid. C. D. Abel. 3,182. February 13.
Improved Retort for Distilling Carbonaceous Substances to Mineral Oil and Ammonia. A. C. Thomson. 3,224. February 14.
Manufacture of Artificial Fuel. T. Price and T. S. Payne. 3,225. February 14.
Improvements in Papermaking Machines. H. H. Lake. 3,226. February 14.
Production of Cyanides. O. J. Steinhardt. 3,316. February 14.
Artificial Stone. C. George. 3,338. February 15.
Packing and Sealing Deliquescent salts and Powders, etc. W. K. Edge, J. Edge. 3,349. February 15.
Water Filtering Apparatus for Domestic and Manufacturing Purposes. H. M. Ramsay. 3,353. February 15.
Preserving Wood. A. A. Hely. 3,356. February 15.
Improvements in the Manufacture of Heat Resisting Grease and Lubricating and Fireproof Purposes. H. J. Saunders and H. J. 3,368. February 15.
New Colouring Matters. H. E. Newton. 3,395. February 15.
Removing Sulphur Compounds other than Sulphuretted Hydrogen from Coal Gas. J. Bond. 3,445. February 16.
Cleaning Tin and Terne Plates. B. Harries, J. Williams, W. Williams, B. Jones. 3,451. February 16.
New Acid Colouring Matters. J. Y. Johnson. 3,487. February 16.
Colouring Matters from Alkylated Sulpho Acids. H. E. Newton. February 16.
Extracting Metals by Electricity and Apparatus therefor. L. 3,573. February 17.
Filtering Oil and other Liquids. G. A. J. Schott. 3,606. February 17.
Fire Extinguishers. O. T. Newton. 3,626. February 18.
Fire Extinguishers. O. T. Newton. 3,627. February 18.
Smoke Consuming Apparatus. J. Duckett and Son, Ltd. 3,629. February 18.

GERMAN PATENTS for week ending FEBRUARY 25th.

Specially abstracted by Dr. H. Zerener, civil engineer, the Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to answer queries from subscribers to the Journal gratis.

- 12 W. 8,385. Separating Gases of different Illuminating Power. I. hausen, Berlin, N.W., Helgoländer Ufer 2.
22 C. 3,556. Diazo Dyes of Amido-naphtholdisulphonic Acid. Cassella and Co., Frankfurt-a-Maine.
23 D. 5,379. Preparing β-Dinaphthyl-μ-phenyldiamine, Dahl Barmen.
27 F. 5,854. Dyestuffs of the Alizarine-Cyanines Class. Farbwerke vorm. Meister and Lucius, Höchst a/M.
27 F. 6,127. Red Dyestuffs of Rhodamine and Dinitrochlorbenzene.
26 H. 11,690. Producing Water Gas with one regenerator only. Hanis, Boston, Mass., U.S.A.

9,495. Apparatus for utilizing the Sulphurous Acid in Waste Sulphite Lyes from treating wood, for preparing Bisulphites of Lime. Maschinenbauanstalt-Golzern, Golzern i/S.

9,203. Printing and Dyeing with Fluor Chrome and Basic Fluorides (addition to patent 44,493). R. Koepp and Co., Oestrich i/Rheingau.

7,655. Preparing Pure Aluminium Fluoride. Grabau's Aluminium Werke, Trotha b/Halle a/S.

12,274. Recovering Sodium Acetate from Waste Liquors from the manufacture of Cellulose. W. H. Higgin, Lever Grange, Great Lever, Lton, Lanc., Eng.

1,142. Preparing Carbonic Acid from Limestone, etc. D. Rylands, Airfoot, Eng.

1,555. Violet Acid Dyes of the Triphenylmethane Series. Farbenfabrik. F. Bayer and Co., Elberfeld.

7,429. Adjective Black Polyazo Dyes of Dioxy-naphtholmonosulphonic Acid. Gesellschaft für Chemische-Industrie Basel.

7,699. Preparation of β -Amidoxynaphtholsulphonic Acid. Gesellschaft für Chemische-Industrie, Basel.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

C. THORNTON and J. W. IRELAND, under the style of C. Thornton and Co., Patricroft, Lancashire, drysalters and cordial manufacturers.

F. CROSSLAND and A. JOHNSON, under the style of F. Crossland and Co., Warrington, wholesale druggists.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

BURNETT, JAMES, Fulwood, near Preston, and Preston, oil manufacturer.

Adjudication.

BURNETT, JAMES, Fulwood, near Preston, and Preston, oil manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending February 18th.

Acid—

and, 30 pkgs. Philipps & Graves
" 70 T. H. Lee

ice, 210 c. Arnati & Harrison
" 120 " "
" 110 " "

and, 135 pkgs. Ohlenschlager
" Bros.

ina—
many, 20 pkgs. Tough & Hender-
" son

inium—
ium, £72 Major & Field

mony—
ugal, 50 t. J. Bamber
many, ½ L. & I. D. Jt. Co.
in, 4 c. Pillow, Jones, & Co.

ica, 11 Smith, Sundius, & Co.
Italia, 26 H. Bath & Co.
" 20 James & Shakespeare

stos—
ce, £18 Flageollet & Co.
" 70 Tingle, Jacobs, & Co.

tes—
many, 25 cks. W. Pope & Co.
" 57 W. Fenton
" 20 G. Steinhoff
ium, 51 J. L. Lyon & Co.
" 50 pkgs. H.A. Litchfield
" & Co.
" 42 Hemingway & Co.
" 47 W. Harrison & Co.
" 46 Colthurst & Harding

ide of Iron—
many, 32 pkgs. A. & M. Zimmer-
" mann

chouc—
and, 20 cs. J. Owen
ates, 16 Williams, Torrey,
" & Co., Ltd.
ce, 30 Flageollet & Co.

r Oil—
um, 50 brls. A Brown & Co.
" 5 cs. Beresford & Co.
ourne, 2 J. Swire & Sons
ce, 10 F. Boehm
" 30 Lucas & Spencer's
" Wt., Ltd.
dies, 250 Anderson, Weber,
" & Smith

icals (otherwise undecrised)
any, 10 pkgs. Philipps & Graves
" 46 W. Burton & Sons
ce, 8 Hernu, Peron,
" & Co.
any, 5 L. & I. D. Jt. Co.
" 2 R. W. Greeff & Co.
" 8 A. & M. Zimmermann
" 16 T. H. Lee
" 4 cks. G. Meyer & Co.
" 31 T. H. Lee
" 22 A. & M. Zimmermann

Coal Products—

Anthracene

France, 61 pkgs. Burt, Boulton,
" & Co.

Cream of Tartar—

Spain, 2 pkgs. J. Knill & Co.
" 2 A. Ruiz

France, 8 Ross & Deering
" 12 W. C. Bacon & Co.
" 5 A. F. White & Co.
" 10 B. & F. Wf. Co., Ltd.
" 12 E. W. Carling & Co.
Germany, 30 G. Meyer & Co.
France, 14 B. & F. Wf. Co., Ltd.
" 14 Hopcraft & Broadwater

Italy, 20 B. Jacob & Sons
Melbourne, 1 Smith, Abbott, & Co.
Holland, 3 Middleton & Co.

Dextrine—
Germany, 50 pkgs. H. Lorenz

Dyestuffs—
Argols
Italy, 761 pkgs. B. Jacob & Sons
" 40 Thames S. T. & L. Co.,
" Ltd.

Cochineal
Canaries, 10 pkgs. Johnson, Hicks,
" & Co.
" 5 Kubner, Henderson,
" & Co.

Divi Divi
Savanilla, 843 pkgs. Royal Mail S. P.
" Co.

Extracts
Austria, 300 pkgs. A. J. Humphrey
France, 117 Carey & Sons

Gambier
E. Indies, 229 pkgs. L. & I. D. Jt. Co.
" 667 " "

Indigo
E. Indies, 98 cts. L. & I. D. Jt. Co.
" 130 Forbes, Forbes, & Co.
" 25 H. W. Jewsbury & Co.
" 46 F. Huth & Co.
Manila, 215 S. Figgis & Co.
E. Indies, 83 Elkan & Co.

" 320 R. Von Glehn & Sons
" 15 Stutz & Co.
" 166 Ross & Deering
" 19 J. Owen
" 22 Elkan & Co.
" 40 L. & I. D. Jt. Co.
" 7 H. Johnson & Sons
" 2 P. & O. Co.
" 2 J. Stutchbury & Sons
" 53 Arbuthnot, Latham,
" & Co.

" 90 Ross & Deering
" 29 Steinthal & Co.
" 177 Stansbury & Co.
" 180 J. Finlay & Co.
" 15 Kleinwort, Sons, & Co.
" 5 Philipps & Graves
" 23 L. & I. D. Jt. Co.

Myrabolams
E. Indies, 683 pkgs. Croysdale & Co.
" 683 H. B. Evans

Orchella
E. Indies, 3 pkgs. L. & I. D. Jt. Co.
" 50 " "

Saffron

France, 1 pkg. G. W. Wheatley
" & Co.
" L. & I. D. Jt. Co.

Tanners' Bark
Natal, 2 t. A. & W. Nesbitt
" 1 J. T. Rennie, Son,
" & Co.

Valonia
A. Turkey, 11 t. Beresford & Co.
" 15 C. Scheeps & Co.
" 1 M. D. Co.
" 17 Anning & Cobb
" 36 A. & W. Nesbitt
" 11 Beresford & Co.

Farina—
Holland, 50 pkgs. J. Barber & Co.
" 50 Hicks, Nash, & Co.

French Chalk—
France, £18 Pronk, Davis, & Co.

Glucose—
U. States, 1,250 pkgs. 1,250 c. Boake,
" Roberts, & Co.
" 250 250 c. L. & I. D. Jt.
" Co.
" 75 414 T. M. Duche &
" Sons
" 500 500 L. Sutro & Co.
" 325 1,788 Prop. Chambln.'s
" Wf.
" 30 112 Vokins & Co.
Germany, 25 204 Prop. Chambln.'s
" Wf.

France, 700 700 J. Barber & Co.
U. States, 1,675 2,531 K. G. Hall & Co.
" 50 300 N. S. S. Co.
" 25 150 R. G. Hall & Co.
" 50 303 J. Knill & Co.
" 4 20 R. T. Turnbull
Germany, 13 100 J. Knill & Co.

Guano—
Cape Town, 552 t. D. de'Pass & Co.
River Plate, 360 Goad, Rigg, & Co.

Lead Acetate—
France, 10 pkgs. F. Smith
Germany, 5 Spies Bros. & Co.
" 10 A. Hughes
" 10 H. Hodson & Co.

Manganese—
Australia, 228 t. Harrold Bros.

Manure—
Belgium, 19 pkgs. D. C. Thomas &
" Son
Germany, 5 t. Beresford & Co.

Mica—
Adelaide, £250 F. Braby & Co.

Naphtha—
Germany, 8 cks. L. & I. D. Jt. Co.

Painters' Colours—
Germany, 6 pkgs. 9 cs. Philipps &
" Graves
Belgium, 16 12 cks. T. H. Lee
" T. Palmer
France, 7 Hernu, Peron, & Co.
" 6 Flageollet & Co.
Germany, 3 T. H. Lee
" 5 L. & I. D. Jt. Co.
Holland, 51 J. Matton
" 11 Squire & Smith
" 25 Fenner & Co.

Germany, 2 H. Keller & Co.
U. States, 24 Beck & Pollitzer

Germany, 9 pkgs. T. H. Lee
Belgium, 10 T. Palmer
U. States, 1 Allan Bros. & Co.

Paraffin Wax—
U. States, 60 brls. L. & I. D. Jt. Co.
" 838 H. Hill & Sons
" 4,358 pkgs. J. H. Usmar
" & Co.
" 8 Williams, Torrey, & Co.

Phosphate Rock—
Holland, 500 t. Anglo Contl. G. Wks.
U. States, 2,100 C. A. & H. Nichols
Belgium, 50 Lawes Chemical M. Co.

Picric Acid—
France, 12 pkgs. Bailey & Leatham

Pitch—
Belgium, 13 brls. Poth. Hille, & Co.
E. Turkey, 24 Burrell & Co.
France, 180 cks. H. Hill & Sons

Plumbago—
Italy, 64 pkgs. Girard & Co.
Ceylon, 195 brls. Hale & Sons
" 93 J. Thredder, Son, & Co.
Holland, 137 cks. B. Gallaway
Germany, 10 cs. R. Lyon & Co.
" 40 Prop. Scott's Wf.
E. Indies, 156 Marshall & French
Ceylon, 47 brls. Prop. Sun Wf.
" 90 H. A. Litchfield & Co.
Germany, 88 cks. R. Lyon & Co.
" 19 J. Thredder, Sons,
" & Co.

Potassium Bicarbonate—
Holland, 24 cks. A. & M. Zimmer-
" mann

Potassium Carbonate—
France, 26 c. J. A. Reid

Potassium Permanganate—
Germany, 10 pkgs. H. Lorenz

Potassium Sulphate—
France, 12 pkgs. Mead, Son, & Co.

Potash—
France, 105 c. Petri Bros.

Pyrites—
Spain, 921 t. C. Tennant, Sons,
" & Co.
" 1,461 Societe Commerciale
" 1,050 T. S. Whitehead & Co.

Quicksilver—
Belgium, 6,999 btls. N. M. Rothschild
" & Son

Rosin—
France, 52 brls. Pillow, Jones,
" & Co.
Germany, 11 Suter Hartmann's
" Composition Co.

Saltpetre—
Germany, 7 cks. J. A. Reid
E. Indies, 179 bgs. C. Wimble & Co.
Germany, 80 kgs. P. Hecker
" & Co.
E. Indies, 1,055 L. & I. D. Jt. Co.

Sodium Acetate—
France, 9 pkgs. S. F. Waters & Co.
" 12 " "

Sodium Sulphide—

Holland, 40 pkgs. Beresford & Co.
" 40 R. W. Greeff & Co.

Stearine—

France, 18 cks. J. Goddard & Co.
Holland, 31 bgs. Robinson, Roberts, & Co.
Belgium, 250 H. Hill & Sons

Sulphur—

Italy, 10 t. J. Kitchin, Ltd.
" 5 G. Boor & Co.
" 200 W. C. Bacon & Co.
" 10 F. Smith
" 10 J. Puddy & Co.
France, 3 L. & I. D. Jt. Co.
Italy, 100 Johnson & Hooper

Tallow—

Cape, 2 cks. Dyster, Nalder, & Co.
France, 16 Williams, Torrey, & Co.
Adelaide, 87 Kaul & Haenlein, Ltd.
Melbourne, 150 H. Lambert
Queensland, 22 Aust. Meat Co.
" 161 Anning & Cobb
N. Zealand, 50 Culverwell, Brooks, & Co.
Melbourne, 8 J. Morrison & Co.
" 92 A. B. Curtis & Co.
" 99 Baxter & Hoare
" 108 Anning & Cobb
" 256 J. Owen
Holland, 10 Philipps & Graves
N. Zealand, 37 Brown & Elmslie
" 106 N. Z. L. & M. A. Co.
" 456 Flack, Chandler, & Co.
Melbourne, 25 J. Owen
" 48 Ross & Deering
Natal, 3 A. & W. Nesbitt
Sydney, 111 J. Graves
N. Zealand, 20 Culverwell, Brooks, & Co.
" 9 Beresford & Co.
" 34 Nelson Bros.
" 16 Culverwell, Brooks, & Co.
Queensland, 214 J. Greig
Adelaide, 86 Kaul & Haenlein
Sydney, 161 Hicks, Nash, & Co.

Tallow and Stearine—

U. States, 3 cks. S. Guiterman & Co.
Belgium, 3 Union L. Co., Ltd.

Tartaric Acid—

Holland, 26 pkgs. B. & F. Wf. Co., Ltd.
Germany, 25 G. Meyer & Co.
Holland, 6 Middleton & Co.
France, 20 B. & F. Wf. Co., Ltd.
Holland, 12 Middleton & Co.

Turpentine—

Savannah, 1,150 brls. Prod. Brokers Co., Ltd.
France, 1,750 Nickoll & Knight
" 31 cks. B. & F. Wf. Co., Ltd.

Ultramarine—

Holland, 4 cks. H. Hodson & Co.
Belgium, 6 Leach & Co.
Germany, 8 cs. G. Steinhoff
Holland, 2 Philipps & Graves

Varnish—

Belgium, 2 pkgs. Union L. Co., Ltd.
" 10 Stobbs, Wilson, & Co.
U. States, 24 Beck & Pollitzer
" 57 Pinchin, Johnson, & Co.
France, 2 Piagollet & Co.

White Lead—

Holland, 1 ck. J. Van Dulken
" 28 Colthurst & Harding
Germany, 10 W. Taylor, jun., & Co.
" 47 Magee, Taylor, & Co.
" 39 Randall Bros.
" 28 G. Clifford
" 4 Haefner, Hilpert, & Co.

Holland, 30

T. & W. Farmilo
Burrell & Co.
Germany, 21 Colthurst & Harding
Holland, 27 A. & M. Zimmermann
" 38 Burrell & Co.
" 63 S. H. Willoughby
" 26 N. J. Fenner & Co.
" 21 F. Broome
" 20 T. & W. Farmilo
" 100

Zinc Ashes—

Australia, 10 t. F. Pryor
" 18 F. Fryor

Zinc Oxide—

Holland, 50 cks. F. Pryor
" 68 M. Ashby, Ltd.
" 15 Blundell, Spence, & Co.
" 31 G. Farmiloe & Sons
" 10 S. H. Willoughby
" 12 brls. J. L. Lyon & Co.

LIVERPOOL.

Week ending February 16th.

Acetate—

Dunkirk, 1 bkt.

Acetate of Lime—

N. York, 1,595 bgs.

Acetic Acid—

Rotterdam, 10 ballns.

Antwerp, 10 bskts.

J. T. Fletcher & Co.

Aniline Salts—

Rotterdam, 4 cks.

Barytes—

In transit, 120 cks.

Bone Meal—

Calcutta, 5,332 bgs.

Bombay, 11,658

Boracic Acid—

Leghorn, 90 cks.

Brimstone—

Catania, 120 t.

Castor Oil—

Calcutta, 250 cs.

Chemicals (otherwise undescribed)

Rotterdam, 2 cks.

Chloroform—

Bordeaux, 1 cs.

Cobalt Oxide—

Hamburg, 4 cs.

Colours—

In transit, 20 cs.

Bombay, 4

Cottonseed Oil—

New York, 10 brls.

Cream of Tartar—

Barcelona, 5 cks.

Sachse & Klemm

" 13 hds.

Dyestuffs—

Annatto

Bordeaux, 22 cks.

Divi Divi

Hamburg, 300 bgs.

Extracts

Bordeaux, 150 cks.

Philadelphia, 300 bxs.

New York, 6 brls.

Fustic

Carthagena, 1,729 ps.

Widow, Duranty & Son

Indigo

Calcutta, 399 chts.

Bombay, 50 cs.

Orchella

Lisbon, 3 bls.

Edward Bros.

Sumac

Bordeaux, 100 bls.

Barceloua, 100 bgs.

A. Ruffer & Son

" 50

Palermo, 100

J. Kitchen, Ltd.

" 625

" 155 brls.

Valonia

Constantinople, 167 bgs.

Glucose—

Dunkirk, 100 bgs.

New York, 100 brls.

T. M. Dauche & Son

" 324

Hamburg, 50 cks.

Limestone—

Antwerp, 1 crt.

Nitrate—

Rotterdam, 20 cks.

Ochre—

Bordeaux, 62 cks.

Paint—

Boston, 35 cs.

New York, 15

Phosphate Rock—

Beaufort, S.C., 2,901 t.

Phospho Guano Co.

Pitch—

Amsterdam, 26 cks.

Potash—

Dunkirk, 20 cks. 19 dms.

Potassium Chlorate—

Bordeaux, 1 cs.

Potassium Prussiate—

Rotterdam, 5 cks.

Pyrites—

Huelva, 1,381 t.

Tennants & Co.

" 1,702 Matheson & Co.

Rosin—

Hamburg, 12 cs.

Saltpetre—

Rotterdam, 62 cks.

482 bgs.

Calcutta, 12

Hamburg, 12

Soap—

Boston, 8 cs.

New Orleans, 2,100 brls.

" York, 3 Burroughs, Welcome & Co.

In transit, 100 160 pkgs

Naples, 30 P. Behrends

Stearine—

Antwerp, 10 bgs.

Philadelphia, 125

Tallow—

New York, 180 tcs.

San Francisco, 110 brls.

Tar—

Genoa, 3 brls.

J. R. Peace & Co.

Tartar—

Bordeaux, 8 cks.

Terpentine—

Alexandria, 3 brls.

Ultramarine—

Rotterdam, 22 cs. 2 cks

Hamburg, 1

Verdigris—

Bordeaux, 3 cks.

White Lead—

Rotterdam, 23 cks.

Zinc Oxide—

Antwerp, 20 brls.

J. T. Fletcher & Co.

" 220

Zinc White—

Bremerhaven, 20 cks.

HULL.

Week ending February 18th.

Alum—

Rotterdam, 73 cks.

W. & C. L. Ring-rose

Asbestos—

Flushing, 13 cs.

Alex. D. Wilson, Sons & Co., Ltd.

Barytes—

Antwerp, 10 cks. 100 bgs.

Bailey & Leatham

Bremen, 44

G. Holmes & Co.

Bleaching Powder—

Antwerp, 25 cks.

Wilson, Sons & Co., Ltd.

Chemicals (otherwise undescribed)

Rotterdam, 3 cks.

Hutchinson & Son

Bremen, 7

Veltmann & Co.

" 1

J. Pyefinch & Co.

Dunkirk, 74 pkts.

Wilson, Sons & Co., Ltd.

Colours—

Hamburg, 10 cks. 25 cs.

G. Malcolm & Son

Rotterdam, 2 cks.

G. Lawson & Sons

Flushing, 4

Hutchinson & Son

" 49 30

Veltmann & Co.

Bremen, 4

W. S. Merrikin

Rotterdam, 15 pkts.

W. & C. L. Ring-rose

" 1 ck.

Hutchinson & Son

" 12 pkts.

G. Lawson & Sons

" 44

W. & C. L. Ring-rose

Cottonseed Oil—

New York, 750 brls.

Wilson, Sons & Co., Ltd.

Antwerp, 76 cks.

C. M. Lofthouse & Co.

Cream of Tartar—

Rotterdam, 4 cks.

W. & C. L. Ring-rose

Dextrine—

Hamburg, 50 bgs.

Dyestuffs—

Alizarine

Flushing, 25 cks. 2 cs.

Wilson, Sons & Co., Ltd.

" 66

W. & C. L. Ring-rose

Rotterdam, 8 pkts.

Valonia

Sandarli, 101

Sumac

Palermo, 458 bgs.

Wilson, Sons & Co., Ltd.

" 750

Rawson & Robinson

Farina—

Harlingen, 529 bgs.

" 100

Glucose—

New York, 275 brls.

Manure—

Ghent, 31 t.

Wilson, S.

Hamburg, 47 bgs.

G. Law

Pitch—

Amsterdam, 13 cks.

H.

Potash—

Antwerp, 51 pkts.

Wilson, S.

Saltpetre—

Hamburg, 2 cks.

G. Law

Soap—

Bari, 291 cs.

Wilson, S.

Soda—

Amsterdam, 4 cks.

W. & C.

Sulphur—

Catania, 2,604 pkts.

Wilson, S.

" 250 bgs.

50 L.

Tallow—

Dunkirk, 38 brls.

Wila

Tartar—

Bordeaux, 2 cks.

Rawson &

Tartaric Acid—

Rotterdam, 1 ck.

of Barytes—	
ad—	150 bgs.
91 cks.	J. Rankine & Son
6	
e—	
25 cks.	J. Rankine & Son
50	
hate—	
3 brls.	
TYNE.	
nding February 18th.	
th—	
36 cks.	Tyne S. S. Co.
34 cks.	Tyne S. S. Co.
26 cks.	

Paint—	
Rotterdam,	10 dms. 5 brls. Tyne S. S. Co.
Phosphate—	
U. S.,	3,110 t. Langdale's Chemical Manure Co.
Pyrites—	
Huelva,	1,851 t. Scott Bros.
Saltpetre—	
Hamburg,	8 cks. Tyne S. S. Co.
Stearine—	
Antwerp,	13 bgs.
Tartaric Acid—	
Rotterdam,	1 ck. Tyne S. S. Co.
White Lead—	
Antwerp,	21 brls.
GOOLE.	
Week ending February 8th.	
Alkali—	
Calais,	31 cks. 1 bx.

Gaoutchouc—	
Boulogne,	3 pkgs. 10 cks.
Dyestuffs—	
Alizarine	
Rotterdam,	21 brls. 82 pkgs.
Fustic	
Hamburg,	1,414 pcs.
Dyestuffs (otherwise undescribed)	
Boulogne,	13 cks. 1 cs. 66 pkgs.
Farina—	
Hamburg,	625 bgs.
Glucose—	
Dunkirk,	60 bgs.
Potash—	
Rotterdam,	20 cks.
Dunkirk,	7 20 dms.
Saltpetre—	
Rotterdam,	100 bgs.
Waste Salt—	
Hamburg,	225 cks.

GRIMSBY.

Week ending February 11th.

Gaoutchouc—	
Hamburg,	5 pkgs.
Chemicals (otherwise undescribed)	
Esbjerg,	6 cks.
Rotterdam,	4 pkgs.
Hamburg,	66
Dyestuffs (otherwise undescribed)	
Dieppe,	8 cks.
Farina—	
Hamburg,	300 bgs.
Glucose—	
Hamburg,	5 pkgs.
Size—	
Hamburg,	41 pkgs.
Antwerp,	10
Zinc Ashes—	
Hamburg,	16 cks.
Antwerp,	32 pkgs.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.	
nding February 22nd.	
6 carboys.	£34
20 cs.	45
15	23
1 t. 1 c.	£15
3	9
(Liquid)—	
10 drs.	£25
17	
m Sulphate—	
15 t. 8 c.	£152
217 3	2,250
20	210
155 14	1,600
400 3	4,300
25 18	260
25	260
50	650
260 14	2,725
1 t.	£18
20 drs.	11
1	16
e of Carbon—	
6 ts 1 c.	£74
Powder—	
4 t. 1 c.	£55
10	8
9	10
2 10	35
11 t. 5 c.	£44
8 c.	£15
Acid—	
40 cks.	£235
24	75
2 t. 19 c.	125
10 drs.	10
Acid Gas—	
6 cs.	£33
Soda—	
25 t.	£263
7 c.	14
seiro, 14 11	165
70 8	100
(otherwise undescribed)	
20 cs.	£78
4 5 c.	33
12	92
20 kgs.	31
2	8
5 1 ck.	65
3 pkgs.	15
id—	
10 c.	£79
12 12 cks.	520
10 kgs.	81

Calcutta,	1	6
Karachi,	2 cs.	18
Flushing,	1	40
Rotterdam,	4	32
Antwerp,	5 pkgs.	80
Brussels,	2	80
Coal Products—		
Alizarine		
Boston,	50 cks.	£545
Bombay,	55 kgs.	331
Aniline		
Calcutta,	1 tnk.	£142
New York,	25 cks.	160
Aniline Oil		
Rotterdam,	12 drs.	£400
Anthracene		
Dusseldorf,	304 cks.	£1,192
Rotterdam,	83	637
Benzol		
Rotterdam,	18 cks.	£152
Hamburg,	16 drs.	199
Pitch		
Boston,	540 kgs.	£168
Rangoon,	16 brls.	13
Dunkirk,	450 tns.	650
Copenhagen,	25	50
Philadelphia,	500 cks.	147
Tar		
St. Lucia,	10 cks.	£11
Natal,	680 drs.	34
Kingston,	40 pkgs.	90
Toluol		
Rotterdam,	50 tns.	£160
	10 pns.	90
Coal Products (otherwise undes.)		
Beira,	60 pkgs.	£19
Copperas—		
Varna,	3 t. 5 c.	£8
Copper Carbonate—		
New York,	2 c.	£8
Copper Sulphate—		
B. Ayres,	32 t.	£300
Bordeaux,	10	170
Varna,	1 3 c.	18
Odessa,	9 8	128
Christchurch,	1	16
Genoa,	32 7	491
Sydney,	2	32
Terneuzen,	10 3	150
Lisbon,	9 18	144
Naples,	10	180
Seville,	1 2	16
Port Alegre,	1 15	13
Canterbury,	1	19
Cream of Tartar—		
Auckland,	3 c.	£13
Sydney,	3 21 cks.	94
Lyttelton,	10	40
Melbourne,	1 t.	80
Hobart,	7 cs.	17
Adelaide,	1 18	138
Disinfectants—		
New York,	7 cks.	£71
Natal,	12 pkgs.	11
Lyttelton,	5 cs.	12
Sydney,	2	19

Dried Blood—			
Dunkirk,	30 t.		£192
Baltimore,	50	7 c.	315
Glycerine—			
Hong Kong,		4 c.	£9
Boston,	5 cs.		22
Adelaide,	1 t.		43
Bombay,		10	23
Guano—			
Trinidad,	15 t.	1 c.	£117
Landerneau,	290		2,900
Manure—			
Bundaberg,	11 t.	2 c.	£250
Mauritius,	280	1	1,204
Bordeaux,	141		610
Grand Canary,	4	9	32
Terneuzen,	109		500
Havre,	15		60
Gothenburg,	68	4	263
Sav. la Mar,	41		500
Kingston,	18	6	180
Cherbourg,	349	16	1,605
Genoa,	50		300
Jamaica,	56		684
St. Vincent,	35		280
"	30		210
New York,	177	11	940
Berlice,	20		205
Rotterdam,	28	10	165
Surinam,	2		30
Oxalic Acid—			
Bombay,		10 c.	£14
Yokohama,	2 cks.	15 kgs.	31
Higo,		20	29
Sydney,	4 cks.		11
Phosphorus—			
Las Palmas,		1 c.	£11
Phosphoric Acid—			
Demerara,	5 t.		£80
Potassium Bichromate—			
Sydney,	1 t.	1 c.	£47
Potassium Chlorate—			
Sydney,		10 c.	£36
Lisbon,		5	20
Mazatlan,		3	12
Potassium Cyanide—			
Shanghai,		5 c.	£25
Potassium Phosphate—			
Antigua,	5 t.		£100
Salammoniac—			
Trebizonde,	2 t.		£68
Varna,	1	14 c.	53
Amsterdam,		14	22
Salt Cake—			
Ghent,	145 t.		£254
Ostend,	130		226
Saltpetre—			
Port Elizabeth,		9 c.	£9
Guadeloupe,	50 t.	15	864
Rio de Janeiro,	2	5	51
Christchurch,	1	5	28
Hamburg,		11	14
Bilbao,	2	10	52
Sydney,	7		155

Adelaide,	1	22
Canterbury,	10	11
Algoa Bay,	5	6
Oporto,	14 5	291
Salts of Tartar—		
Sydney,	9 c.	£10
Sheep Dip—		
Natal,	400 drs.	£81
Pt. Elizabeth,	300	60
Johannesburg,	50	11
San Francisco,	300 cs.	525
Adelaide,	10	25
Wellington,	2 t. 10 c.	62
Christchurch,	2 10	62
Invercargill,	2 10	62
Hobart,	15	40
Launceston,	15	40
E. London,	3 400 drs.	150
Soap Lyes—		
Rotterdam,	9 t. 14 c.	£160
Soda—		
Melbourne,	1 t. 10 c.	£11
Sydney,	2	14
Algoa Bay,	18	7
Soda Ash—		
Melbourne,	15 t. 1 c.	£93
Sydney,	15 2	94
Soda Crystals—		
Algoa Bay,	5 t. 1 c.	£16
Sodium Acetate—		
Sydney,	3 t. 4 c.	£54
Sodium Bicarbonate—		
Natal,	3 t.	£20
Auckland,	3 5 c.	20
Sydney,	1 3	24
Sodium Nitrate—		
Sydney,	5 t. 10 c.	£54
Soda Salts—		
New York,	10 cks.	£35
Strontium Nitrate—		
New York,	22 cks.	£130
Sulphate of Iron—		
Gibraltar,	2 t. 3 c.	£6
Sulphate of Soda—		
Baltimore,	69 t. 19 c.	£180
Sulphuric Acid—		
Penang,	32 cs.	£29
E. London,	1 t. 10 c.	35
Sulphur—		
Natal,	1 t.	£9
Santos,	6	48
Algoa Bay,	8 19 c.	113
Calcutta,	19 19	109
E. London,	13 2	160
Superphosphate—		
Mauritius,	50 t.	£163
Bordeaux,	49 18 c.	150
Genoa,	64 15	184
Treport,	15	90
Cherbourg,	390	1,170
Mauritius,	551	1,070

Tartaric Acid—

Melbourne,	2 t.	£208
Adelaide,	14 cs.	49
Sydney,	60	302
Kurrachee,	15 c.	82
Canterbury,	3	15

LIVERPOOL.

Week ending February 22nd.

Acetic Acid—

St. John's, Nfld.,	15 cs.	£25
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Alkali—

M. Video,	4 cks.	
Fiume,	4 t. 15 c. 2 q.	£50
Barcelona,	5 2 1	50

Alkali Waste—

Fiume,	1 t. 7 c. 1 q.	£4
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Alum—

Calcutta,	29 t. 13 c. 3 q.	£148
Oporto,	10	60
Portland,	17 15	106
Bahia,	6	3
Varna,	1 8	6
Galatz,	3	14
B. Ayres,	21	110
Lisbon,	5 5	26
Ancona,	1	5

Alum Cake—

Calcutta,	11 t. 1 c. 1 q.	£48
Piræus,	6 18 1	28
Colombo,	5 1 3	15

Ammonium Carbonate—

Bilbao,	1 t. 1 c.	£30
Bordeaux,	1 5 2 q.	40

Ammonium Sulphate—

Ghent,	50 t. 18 c.	£550
Bordeaux,	11 6	121
Las Palmas,	5 7 3 q.	54
Genoa,	22 18 5	250
Barbadoes,	49 10 3	506
Halifax,	10 8 3	108
Alexandria,	1	2
Baltimore,	25 4	270
New York,	250 16	2,638
Leghorn,	19 10 5	215
Valencia,	299 15 10	3,418
Nantes,	112 15	1,176
Baltimore,	75 6 2	825

Aniline Oil—

New York,	10 dms.	
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Aniline Salts—

New York,	28 brls. 91 cs. 12 cks.	
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Arsenic—

New York,	10 t. 8 c.	£131
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Barium Chlorate—

Carril,	1 c.	£5
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Bleaching Powder—

Alexandria,	12 brls.	
Boston,	1,138 cks.	
B. Ayres,	50	
Calcutta,	150 cs.	
Callao,	7	
Christiania,		110 kgs.
Chicago,		50 bxs.
Dunkirk,	18	
East St. Louis,		10
Genoa,	93	
Hamburg,		50 bks.
Havana,	10 cs.	23
New York,	624	50
Philadelphia,	100 cs.	
Bombay,	8	
Bordeaux,	40	20 dms.
Canada,	31	
Carril,	5	
Catania,	9	
Ghent,	320	
Lisbon,	5	
Rio de Janeiro,	8	
Rouen,	17	
Ancona,	22	
Boston,	50 t.	£425
New York,	63 10 c.	540
Baltimore,	40 3	342

Bone Meal—

New York,	100 t. 5 c.	£422
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Boracic Acid—

Rotterdam,	2 t. 4 c.	£87
Antwerp,	1 3 2 q.	45
Boston,	5 7	218

Borax—

Carril,	4 c. 3 q.	£7
Rotterdam,	3 t. 5 3	100
Antwerp,	2 12	77
Palermo,	9	13
Guayaquil,	18 1	28
Malaga,	14 2	21
Vera Cruz,	2 brls.	
Rotterdam,	145 cks.	

Calcium Chloride—

New York,	40 dms.	£27
"	10 t. 1 c.	21

Calcium Phosphate—

New York,	12 c. 2 q.	£12
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Carbolic Acid—

Odessa,	9 c. 3 q.	£27
New York,	8 t. 7 1	578
Genoa,	11	30
Vera Cruz,	4 2	19
Hong Kong,	1	25
New York,	11 9	704

Caustic Potash—

Chicago,	1 t. 11 c.	£40
Bilbao,	7 2	12

Caustic Soda—

Alexandretta,	170 dms.	
Amsterdam,	22 100 kgs.	
Barcelona,	125 24 brls. 84 cks.	
Bari,	141	
Bombay,	10	
Boston,	135	
B. Ayres,	50	
Caibarien,	40	
Callao,	35	
Chicago,	50 20 140 bxs.	
Cienfuegos,	12	
E. St. Louis,	10	
Fiume,	15	
Hamburg,	40	
Havre,	8	
Hiogo,	550	
La Guayra,	30	
Leghorn,	40	
Lisbon,	111	
London, Ont.,	25	
Malaga,	4 6 40 kgs.	
Malta,	35	
Maracaibo,	10	
Marseilles,	25	
M. Video,	59	
Nantes,	114	
New York,	674	
Oporto,	30	
Pecalongan,		50
Philadelphia,		49
San Francisco,	100	10
Santander,	35	
Algoa Bay,		2 bxs.
Baltimore,	312	
Corunna,		20
Galatz,	371	
Genoa,	30	
Ibrail,	53	
La Plata,	80	
Pernambuco,	61	
Rangoon,	14	
Rio de Janeiro,	7	
Samarang,	36	
San Paulo,	40	
Seville,	297	45 12 cks.
Valencia,		50
Vigo,		10
Yokohama,	75	
E. London,	3 kgs.	

Chemicals (otherwise undescribed)

C. C. Castle,	1 t. 6 c. 2 q.	£5
Yokohama,		43
Beyrout,	6	9
New York,	4 8	07
Philadelphia,	13 2	288
Genoa,	4 7	140
Naples,	1 17 4	61
Alexandria,	14	22
Odessa,	1	30
Valparaiso,	17	28

Citric Acid—

Carril,	2 c.	£16
Havana,	2 1 q.	12

Cobalt Oxide—

Gijon,	1 c.	£33
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Copper Sulphate—

Algiers,	10 t.	2 q. £142
Bordeaux,	27 18 c. 1	332
Venice,	17 10 2	288
Calcutta,	5	80
Rio de Janeiro,	2 14 2	5
Seville,	1 7	21
Galatz,	10	8
Ancona,	9 18	138
Palermo,	2 4 3	31
Catania,	8 2	114
Genoa,	3 7 3	49
Bombay,	5	80

Disinfectants—

Bombay,	34 t. 9 c.	£315
Calcutta,	1 5 2 cs. 10 cks	31

Dried Blood—

New York,	40 t. 15 c. 2 q.	£297
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Dyestuffs—

Alizarine		
Lisbon,	1 kg.	
Fustic Extract		
Boston,	26 cks.	
Sumac Extracts		
Boston,	100 brls. 50 cks.	

Guano—

Hamburg,	73 t. 7 c. 4 q.	£307
Valencia,	50	275
Gra. Valencia,	150	1,125
Valencia,	50 1	132
Hamburg,	60 18 2	250

Gypsum—

New York,	88 t. 9 c.	£326
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Hydrochloric Acid—

Singapore,	2 c.	£7
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Iron Oxide—

Talcahuano,	6 t.	£14
Callao,	52 8 c.	141

Iron Sulphate—

Galatz,	2 t. 16 c. 1 q.	£5
Rio de Janeiro,	3 16 1	10
Taltal,	3 16	8
Rio de Janeiro,	1 17	5
Catocolo,	2 8	5

Lead Acetate—

Portland, M.,	6 c.	£8
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Lime—

Quittah,	6 t. 6 c.	£6
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Manure—

Rotterdam,	30 t.	£91
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Oxalic Acid—

San Francisco,	1 t. 1 c.	£29
Palermo,	5	7

Phosphorus—

Oporto,	2 cs.	£29
San Juan, P.R.,	5	49
Hiogo,	9	98
Shanghai,	29	240

Picric Acid—

New York,	55 cs.	£265
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Pitch—

Akassa,	10 brls.	
Antwerp,	108 t.	
Cadiz,	697 17 c.	
Cette,	1,848 17	

Potassium Bicarbonate—

Rio de Janeiro,	1 t. 18 c. 2 q.	£80
Leghorn,	2 6 3	63

Potassium Bichromate—

Alexandretta,	12 c. 1 q.	£26
Rio de Janeiro,	16 3	31
Aleppo,	19	40
Bari,	3 t. 8	120

Potassium Carbonate—

Chicago,	3 t. 17 c.	£65
Halifax,	5	8
Rio de Janeiro,	10	10

Potassium Chlorate—

Bilbao,	1 t. 3 c.	£88
Carril,	15	57
Naples,	4 10	259
Ancona,	2 10	34
Hiogo,	2 13	146
Genoa,		44
Hamburg,	3	208
Hango,	10	651
Rotterdam,	3 6	197
Bari,	1	51
Boston,	1 2	76
Yokohama,	15	997
New York,	40 15	2,303
Hiogo,	15	844
Shanghai,	3 18	228
Havana,	1	4
Rio de Janeiro,	1	70

Potassium Frusate—

Bilbao,	2 c.	£10
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Salammoniac—

Trebizonde,	7 c. 2 q.	£12
Barcelona,	1 t. 1 3	35
Palermo,	9	15
Ancona,	6	10
Genoa,	1 2 6	36

Salt—

Benin,	53 t. 11 c.	
Bonny,	26 3/4	
Boston,	100	
B. Ayres,	107 1/2	
Cleveland,	65	
Jones River,	30	
Lagos,	204 1/2	
Rio de Janeiro,	2	
San Francisco,	58	
Valparaiso,	2	
Adelaide,	100	
Akassa,	300	
Antwerp,	465	
Calcutta,	2,458	

Cape Coast,	10
Diamond Isl.,	1,750
Dixcove,	25
Ghent,	82
Gr. Bassa,	19
Kingston,	5
Loango,	8
Manoh,	20
Old Calabar,	67 16
Para,	275
Porsgrund,	220
Sulymah,	20
Sydney,	300
Warri,	5 7

Salt Cake—

Baltimore,	705 t. 2 c.	£1
Malta,	3 cks.	
Pittsburg,	301	

Saltpetre—

Carril,	9 c.	
Toronto,	1 t. 5	
Las Palmas,	1	
Natal,	2	
Parahyba,	10	
Para,	37 10	
Pernambuco,	5 14 1 q.	

Sheep Dip—

Algoa Bay,	18 c. 2 q.	
M. Video,	5 t.	

Soap—

Brussels,	800 bxs.	
Callao,		8 cs.
Cameroons,	70	
Cape Coast,	250	4
Christiania,		20
Curacao,	315	
Drewin,	112	
Genoa,	105	
Gibraltar,	105	
Havre,		8
Honolulu,	25	
Liege Meuse,		400
Manaos,	50	5
Mayumbra,	12	
Malta,		20
New York,	550	141
Pt. Elizabeth,	500	50
Rotterdam,		200
Toronto,		500
Trinidad,	650	

B. Ayres,	170	150
Cadiz,	30	
Hamilton,		600
Napanea,	12	
Portland, M.,	53	
Santander,	61	
Sherbro,		96
Smyrna,	300	
Trieste,	35	
Soda Crystals—		
Halifax,	25 cks.	
Malta,	25 brls.	
Philadelphia,	280	
Samarang,	23	
Alexandria,	20	
Beyrout,	10	
Calcutta,	33	
Constantinople,	14	
Demerara,	10	
Iquique,		100 kgs.
Malaga,	33	
M. Video,		10
Singapore,	5	
Smyrna,	100	
Valparaiso,	60	
Victoria,	20	
Boston,	84	
Sodium Arseniate—		
New York,	23 cks.	
Sodium Bicarbonate—		
Auckland,	50 kgs.	
Calcutta,	500	
Constantinople,	40	
Galatz,	100	
Genoa,	55	12 cks.
Halifax,	130	2
Havre,	135	
Malaga,	20	
Melbourne,	300	
Montreal,	25	
Naples,	135	
New York,		100
Odesa,	350	
Palermo,	45	4
Singapore,		9
Sydney,	918	
Hamburg,	10	8
Havana,	30	
Lisbon,	10	
Nantes,		4
Portland, M.,	150	
Rotterdam,	39	
Samarang,		5
San Francisco,	350	
Seville,	100	51
Tomato,	50	
Victoria,	50	
Yokohama,	600	
Sodium Chlorate—		
Antwerp,	35 kgs.	
Hamburg,	20	10 brls.
Sodium Metallic—		
Rotterdam,	5 t. 1 c. 3 q.	£932
Sodium Silicate—		
Bilbao,	35 brls.	
Carril,	10	
Passages,	35	
Seville,	160 cks.	
Sodium Tartrate—		
Montreal,	1 cs.	
Spirits of Turpentine—		
Manilla,	75 drs.	£31
Sulphite of Lime—		
New York,	7 c.	£3
Sulphur—		
Boston,	174 t. 3 c.	£675
Parahyba,	1 2 3 q.	10
Para,	7 10	65
Cara,	14 3	7
Las Palmas,	12	5
Superphosphate—		
Las Palmas,	10 t. 2 c. 2 q.	£29
Valencia,	50 9 1	143
"	25 5 2	75
Nantes,	265 7 3	594
Tar—		
Galatz,	130 brls.	
Ihrail,	100	
Vera Cruz,	8	
Alaska,	20	
Bahia,	30	
Honolulu,	25	
Tartaric Acid—		
Carril,	2 c.	£10
Bahia,	2	12
Terpentine Oil—		
New York,	10 dms.	
White Lead—		
Lisbon,	100 kgs.	
Zinc Chloride—		
Bombay,	1 t. 6 c.	£18
Bordeaux,	21	121

HULL.

Week ending February 18th.

Aluminium—		
Genoa,	5 cs.	
Ammonium Sulphate—		
Dunkirk,	100 bgs	
Ghent,	890	
Genoa,	980	
Antimony—		
Libau,	40 cs.	
Benzol—		
Rotterdam,	11 drums.	
Bleaching Powder—		
Gothenburg,	14 cks.	
New York,	48	
Naples,	21	
Bone Size—		
Bremen,	15 cks.	
Flushing,	10	
Ghent,	4	
Carbolic—		
Rotterdam,	50 cs.	
Caustic Soda—		
Libau,	65 drms. 14 cks.	
Chemicals (otherwise undescribed)		
Antwerp,	20 cs. 5 cks.	
Amsterdam,		16 pks.
Christiania,	1,857 silbs.	1
Copenhagen,	155	125 50 kgs.
Dunkirk,	8	
Drontheim,	290	
Gothenburg,		51
Hamburg,	187 cs.	6 20
Konigsberg,		
Libau,	9	250
Leghorn,	43	
Marseilles,	20	6
New York,	558	
Naples,	31	
Rotterdam,		2
Cottonseed Oil—		
Antwerp,	300 c.	
Bergen,	7	
Bremen,	150	
Flushing,	135	
Gothenburg,	70	
Hamburg,	1,141	
Marseilles,	400	
Naples,	87	
Rotterdam,	4,422	
Creosote—		
Rotterdam,	24 cks.	
Dyestuffs (otherwise undescribed)		
Hamburg,	1 cs.	
Libau,	20 cks.	
New York,	17 10 drms.	
Linseed Oil—		
Bergen,	17 e.	
Christiania,	509	
Copenhagen,	45	
Christiansund,	53	
Drontheim,	7	
Hamburg,	122	
Rotterdam,	157	
Stavanger,	21	
Manure—		
Hamburg,	21 bls.	
Leghorn,	20 t.	
Mineral White—		
Amsterdam,	200 brls.	
Harlingen,	50 bales.	
Pitch—		
Antwerp,	300 t.	
Dunkirk,	235	
Genoa,	97	
Naples,	106 cks.	
Painters' Colours—		
Antwerp,	2 cs. 32 cks. 229 pks. 1 drum	
Amsterdam,	30	
Bergen,	2	25
Christiania,	39	100 kgs.
Copenhagen,	18	
Dunkirk,	1	
Drontheim,	1	
Ghent,	41	84
Genoa,	27	
Gothenburg,		1 81
Hamburg,	53	
Leghorn,	5	
New York,	100 345	30 drums.
Naples,	9	208
Rotterdam,	2 12	
Soap—		
Rotterdam,	40 cs.	
Tar—		
Antwerp,	5 cks.	
Amsterdam,	5	
Christiania,	5	
Genoa,	9	
Hamburg,	8	12 brls.
Rotterdam,	5	

Varnish—

Antwerp,	4 cs.	19 cks. 2 brls.
Amsterdam,		1
Christiania,		
Copenhagen,	4	3 2 drums
Ghent,	1	3
Gothenburg,	12	3
Hamburg,		
Harlingen,	1	
Rotterdam,	2	
Zinc Chloride—		
Harlingen,	40 cks	

GLASGOW.

Week ending February 23rd.

Ammonium Sulphate—		
Trinidad,	57 t. 3½ c.	£632
Demerara,	185 18½	1,812
Antwerp,	30 5½	300
Benzol—		
Rotterdam,	30 pns.	£176
Dyestuffs—		
Aniline	2½ c.	£53
Calcutta,		
Argols	33 c.	£17
Boston,		
Fustic Extracts	23½ c.	£47
Dyewood—		
Sydney,	13 t. 19½ c.	£130
Glucose—		
Cape Colony,	5½ c.	£29
Lead Acetate—		
Boston,	32½ c.	£42
Linseed Oil—		
Cape Colony,	8½ t.	£150
Sydney,	192½ c.	192
Portland (Me.)	4 7	91
Logwood—		
Sydney,	53 c.	£31
Manure—		
Demerara,	19 t. 16¼ c.	£212
Rosin Oil—		
Rotterdam,	15 brls.	£30
Sodium Bichromate—		
Gothenburg,	50½ c.	£83
Antwerp,	44¼ c.	70
Saltpetre—		
Portland (Me.),	1 t. 1½ c.	
Soda Ash—		
New York,	19 t. 18 c.	£104
Soap—		
Cape Colony,	7¾ t.	£95
Colombo,	25 c.	25
New York,	3 6¼	48
Salt—		
Demerara,	986½ c.	£75
Sodium Silicate—		
Sydney,	100 c.	£40
Paint—		
Cape Colony,		£78
Colombo,	33 c.	£23
Calcutta,		142
Painters' Colours—		
Singapore,	4 t. 3¼ c.	£49
Hong Kong,	1 3¼	58
Paraffin (Solid)—		
Spain,	19 t. ¾ c.	£477
Paraffin Wax—		
Spain,	8 t. 7½ c.	£219
Hong Kong,	19	60
Japan,	18 13¼	380
Pitch—		
Madras,		£48
Potassium Bichromate—		
Gothenburg,	147½ c.	£294
Rotterdam,	63 cks.	942
Boston,	275½	563
Japan,	37 t. 11	1,498
Antwerp,	13 13½	528
Potassium Oxalate—		
Boston,	6 t. 19½ c.	£195
Potassium Prussiate—		
New York,	9 ½ c.	£820
Tallow—		
Rotterdam,	663 c.	£1,302
Tar—		
Madras,		£34
Boston,	25 t.	52
White Lead—		
Cape Colony,	2½ t.	£40
Sydney,	180 c.	217

TYNE.

Week ending February 18th.

Alkali—		
Antwerp,	20 t. 6 c.	
Christiania,	2 14	
Rotterdam,	5 17	
Alumina Sulphate—		
Rouen,	5 t. 1 c.	
Ammonia Alkali—		
New York,	150 t. 7 c.	
Antimony—		
Rotterdam,	1 t.	
New York,	60	
Barium Binoxide—		
Rouen,	3 t. 10 c.	
New York,	2	
Barium Sulphide—		
New York,	10 t. 2 c.	
Barytes—		
Rouen,	25 t.	
New York,	270 14 c.	
Bleaching Powder—		
Lisbon,	10 t.	
Antwerp,	75 12 c.	
Christiania,	15 4	
Hamburg,	40 4	
Rouen,	5 3	
Rotterdam,	20 6	
New York,	160 14	
Drontheim,	10	
Libau,	130 11	
Caustic Soda—		
Antwerp,	10 t. 3 c.	
Rouen,	5 4	
New York,	87 1	
Litharge—		
Christiania,	6 t. 5	
Rouen,	6 t. 5	
Paint—		
Antwerp,	2 t. 16 c.	
Bergen,	1 6	
Soda—		
Antwerp,	5 t. 7 c.	
Rotterdam,	12 11	
Drontheim,	50 1	
Soda Ash—		
Lisbon,	32 t. 6 c.	
Libau,	9 19	
Sodium Silicate—		
Rotterdam,	2 t. 16 c.	
Sodium Sulphate—		
Drontheim,	400 t. 9 c.	
Libau,	10 6	
Sulphur—		
Antwerp,	17 t. 10 c.	
Libau,	50	
Superphosphate—		
Cherbourg,	195 t. 3 c.	
Tallow—		
Hamburg,	1 t. 16 c.	
White Lead—		
Bergen,	1 t. 6 c.	

GOOLE.

Week ending February 8th.

Benzol—		
Ghent,	23 dms.	
Rotterdam,	96 cks.	
Chemicals (otherwise undescribed)		
Ghent,	8 cks.	
Hamburg,	68	
Rotterdam,	81	
Coal Products (otherwise undesc'd.)		
Boulogne,	24 cks.	
Rotterdam,	39	
Rouen,	6	
Dyestuffs (otherwise undescribed)		
Boulogne,	7 cks.	
Hamburg,	49	
Rotterdam,	20	
Manure—		
Bruges,	220 bgs.	
Ghent,	250	
Rotterdam,	456	
Pitch—		
Dunkirk,	502 t.	
Antwerp,	190	
GRIMSBY.		
Week ending February 11th.		
Chemicals (otherwise undescribed)		
Antwerp,	1 dm.	
Dieppe,	107 pkgs.	
Hamburg,	8 cs. 16 18 cks. 17 botls.	
Naphtha—		
Dieppe,	81 brls.	

PRICES CURRENT.

WEDNESDAY, MARCH 13th, 1891

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids :—				£	s.	d.					£	s.	d.
Acetic, 25 % and 40 % ..	per cwt	7/-	&	11/-	Lime, Acetate (brown) ..	per ton	6	0	0				
Glacial ..	"			50/-	" (grey) ..	"	10	15	0				
Arsenic S.G., 2000 ..	"	0	14	6	Magnesium (ribbon and wire) ..	per oz.	0	2	3				
Fluoric ..	per lb.	0	0	3 3/4	" Chloride (ex ship) ..	per ton	2	7	6				
Muriatic (Tower Salts), 30° Tw. ..	per bottle	0	0	10	" Carbonate ..	per cwt.	1	17	6				
(Cylinder), 30° Tw. ..	"	0	3	0	" Hydrate ..	per ton	17	0	0				
Nitric 80° Tw. ..	per lb.	0	0	1 3/4	" Sulphate (Epsom Salts) ..	per ton	2	19	0				
Nitrous ..	"	0	0	1 3/4	Manganese, Sulphate ..	"	17	15	0				
Oxalic ..	nett	0	0	3 3/4	" Borate ..	per cwt.	2	12	6				
Phosphoric, 1750° ..	"	0	1	2 1/2	" Ore, 70 % ..	per ton	4	5	0				
Picric ..	"	0	1	0	Methylated Spirit, 61° O.P. ..	per gallon	0	2	0				
Sulphuric (fuming 50 %) ..	per ton	15	10	0	Naphtha (Wood), Solvent ..	"	0	3	8				
(monohydrate) ..	"	5	10	0	" Miscible, 60° O.P. ..	"	0	4	6				
(Pyrites, 168°) ..	"	3	0	0	Oils :—								
" 150° ..	"	1	5	0	Cotton-seed ..	per ton	26	15	0				
(free from arsenic, 145°) ..	"	1	6	0	Linseed ..	"	22	15	0				
Sulphurous (solution) ..	"	2	15	0	Lubricating, Scotch, 890°—895° ..	"	7	5	0				
Tannic (pure) ..	per lb.	0	1	2	Petroleum, Russian ..	per gallon	0	0	4 1/2				
Tartaric ..	"	0	0	11 3/4	" American ..	"	0	0	5 1/2				
Arsenic, white powdered ..	nett	per ton	13	10	Potassium (metal) ..	per oz.	0	3	7				
Alum (loose lump) ..	"	5	5	0	" Bichromate ..	nett	per lb.	0	0	4 1/2			
Alumina Sulphate (pure) ..	"	5	0	0	" Carbonate, 90% (ex ship) ..	per ton	18	0	0				
Aluminoferic Cake ..	"	2	10	0	" Chlorate ..	per lb.	0	0	9 1/2				
Aluminium ..	per lb.	0	4	0	" Cyanide, 98% ..	"	0	2	0				
Ammonia, Anhydrous ..	"	0	1	2	" Hydrate (Caustic Potash) 80/85 % ..	per ton	22	5	0				
" 880°=28° ..	per lb.	0	0	2 1/2	" (Caustic Potash) 75/80 % ..	"	21	5	0				
" =24° ..	"	0	0	1 3/4	" (Caustic Potash) 70/75 % ..	"	20	15	0				
" Carbonate ..	nett	0	0	3 3/4	" Nitrate (refined) ..	per cwt.	1	2	6				
" Muriate ..	per ton	20	0	0	" Permanganate ..	per cwt.	3	5	0				
" (sal-ammoniac) 1st & 2nd ..	per cwt.	35/-	&	33/-	" Prussiate Yellow ..	per lb.	0	0	9 1/2				
" Nitrate ..	per ton	38	10	0	" Sulphate, 90 % (ex ship) ..	per ton	9	15	0				
" Phosphate ..	per lb.	0	0	10 1/2	" Muriate, 80 % (do.) ..	"	8	0	0				
" Sulphate (grey) London ..	per ton	11	2	6	Silver (metal) ..	per oz.	0	3	2 1/2				
" (grey) Hull ..	"	11	2	6	" Nitrate ..	"	0	2	10				
Aniline Oil (pure) ..	per lb.	0	0	7	Sodium (metal) ..	per lb.	0	3	4				
Aniline Salt ..	"	0	0	6 1/2	" Carb. (refined Soda-ash) 48 % ..	nett	per ton	6	2	6			
Antimony ..	per ton	45	10	0	" (Caustic Soda-ash) 48 % ..	"	5	0	0				
" (tartar emetic) ..	per lb.	0	1	0	" (Carb. Soda-ash) 48 % ..	"	5	2	6				
" (golden sulphide) ..	"	0	0	10	" (Carb. Soda-ash) 58 % ..	"	5	7	6				
Barium Chloride ..	per ton	7	10	0	" (Soda Crystals) ..	"	3	0	0				
" Carbonate (native) ..	"	3	10	0	" Acetate (ex-ship) ..	"	17	15	0				
" Sulphate (native levigated) ..	"	45/-	to	75/-	" Arseniate, 45 % ..	"	11	15	0				
Bleaching Powder, 35 % ..	nett	8	0	0	" Chlorate ..	per lb.	0	0	10				
" Liquor, 7 % ..	"	3	10	0	" Borate (Borax) ..	net, per ton	29	0	0				
Bisulphide of Carbon ..	"	11	15	0	" Bichromate ..	per lb.	0	0	3 1/2				
Chromium Acetate (crystal) ..	per lb.	0	0	6	" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	11	0	0				
Calcium Chloride ..	per ton	2	5	0	" (74 % Caustic Soda) ..	"	10	10	0				
China Clay (at Runcorn) in bulk ..	"	17/6	to	35/-	" (70 % Caustic Soda) ..	"	9	10	0				
Coal Tar Products and Dyes :—													
Alizarine (artificial) 20 % ..	nett	per lb.	0	0	8	" (60 % Caustic Soda) ..	"	8	10	0			
Magenta ..	"	0	3	9	" (60 % Caustic Soda, cream) (f.o.b.) ..	"	8	5	0				
Anthracene, 30 % A, f.o.b. London ..	per unit	per cwt.	0	1	2	" Bicarbonate ..	"	6	10	0			
Benzol, 90 % nominal ..	per gallon	0	1	6	" Hyposulphite ..	"	7	10	0				
50/90 ..	"	0	1	4	" Manganate, 30% ..	"	16	0	0				
Carbolic Acid (crystallised 40°) ..	per lb.	0	0	7 1/2	" Nitrate (95 % ex-ship Liverpool ..	per cwt.	0	10	0				
(crude 60°) ..	per gallon	0	2	6	" Nitrite, 98 % ..	per ton	30	0	0				
Creosote (ordinary) ..	"	0	0	1 3/4	" Phosphate ..	"	15	10	0				
(filtered for Lucigen light) ..	"	0	0	1 3/4	" Prussiate ..	per lb.	0	0	7 1/2				
Crude Naphtha 30 % @ 120° C. ..	"	0	0	10	" Silicate (glass) ..	per ton	5	7	6				
Grease Oils, 22° Tw. ..	per ton	2	5	0	" (liquid, 100° Tw.) ..	"	4	5	0				
Pitch, f.o.b. Liverpool or Garston ..	"	1	6	0	" Stannate, 40 % ..	per cwt.	3	3	0				
Solvent Naphtha, 90 % at 160° ..	per gallon	0	1	2	" Sulphate (Salt-cake) ..	per ton	1	8	0				
Coke-oven Oils ..	"	0	0	1 3/4	" (Glauber's Salts) ..	"	1	15	0				
Copper ..	per ton	45	16	3	" Sulphide ..	"	7	15	0				
" Sulphate ..	"	16	5	0	" Sulphite ..	"	6	12	6				
" Oxide (copper scales) ..	"	42	0	0	Strontium Hydrate, 100% ..	"	8	10	0				
Glycerine (crude) ..	"	13	0	0	Sulphocyanide Ammonium, 95 % ..	per lb.	0	0	7 1/2				
(distilled S.G. 1250°) ..	"	43	0	0	" Barium, 95 % ..	"	0	0	3				
Iodine ..	nett, per oz.	0	0	9	" Potassium ..	"	0	0	7 1/2				
Iron Sulphate (copperas) ..	per ton	1	12	6	Sulphur (Flowers) ..	per ton	8	0	0				
" Sulphide (antimony slag) ..	"	2	0	0	" (Roll Brimstone) ..	"	6	10	0				
Lead (sheet) for cash ..	"	10	10	0	" Brimstone: Best Quality ..	"	4	5	0				
" Litharge Flake (ex ship) ..	"	13	10	0	Superphosphate of Lime (26 %) ..	"	2	7	6				
" Acetate (white) ..	"	25	15	0	Tallow ..	"	26	5	0				
" brown ..	"	17	10	0	Tin (English Ingots) ..	"	95	10	6				
" Carbonate (white lead) pure ..	"	20	0	0	" Crystals ..	per lb.	0	0	6 1/4				
" Nitrate ..	"	20	0	0	Zinc (Spelter) ..	per ton	17	7	6				
					" Chloride (solution, 96° Tw.) ..	"	5	13	0				

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MANUFACTURERS AND RIVER POLLUTION.

THE proceedings at the last meeting of the Mersey and Irwell Joint Committee were of special interest to manufacturers. It is now only a matter of a few weeks to the time when the notice to cease polluting the rivers Irwell and Mersey expires, and the Committee may be expected to proceed to enforce the Rivers Pollution Act without much delay. The Committee evidently intends to be in a position to state what they consider manufacturers ought, within the limits of reason, to do towards purifying their effluents, and have taken steps to have their propositions backed with the opinion of an expert. As will be seen from our report of the meeting, they have secured the services of Sir Henry Roscoe, who will have to analyse the various waste waters and effluents, and advise the Committee as to the efficiency of the methods of purification adopted. The position of the Committee will be a strong one in many ways, and it must be remembered that, although there is no intention of harassing manufacturers, it is quite out of the province of the Committee to advise manufacturers *how* they are to treat their waste liquors. Seeing the position of the Committee in this matter, it behoves every polluter who has not formulated some idea of how he intends to deal with his particular case to do so, or to avail himself of the knowledge which is to be gained from those who have had experience in such matters. In the selection of their adviser the Committee have, of course, only themselves to please, and it is perhaps natural for the same gentleman that they engaged to make a preliminary report (which, it may be incidentally mentioned, was identical with the final report) to be elected to supply the details for future action.

Whether Sir Henry anticipated being called upon to go further into this matter when he advised that no definite standard of purity should be fixed, it is impossible to say; but, wide as the variance between different cases may be, it is most natural to presume that the methods for the treatment of the same kinds of waste water, as for instance from paper works, will be much of a muchness. Something approaching a standard, therefore, will have to be fixed upon, as with the recommendation to adopt "the best practical means," some definition of what are the best practical means will have to be given, and from a chemical point of view we shall be most interested to learn how those words will be interpreted. We would again remind manufacturers that it is they themselves who have to find out the best way of treating their waste liquors. Sanitary and local authorities have been left pretty much to their own resources by the Committee, and at the same time kept going by constant inquiry from the Committee as to the progress which was being made. When the manufacturers' turn comes they may rest assured that those who represent the interests of local authorities etc., will see manufacturers do

not get too much information of a helpful nature. The lame dogs must not look to the Committee to remove the stile for them, tho' they may gather a few crumbs of advice to help them over it. Since it is evident that "every tub will have to stand on its own bottom," let manufacturers see that their own tubs have bottoms, and moreover, substantial ones.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

THE usual monthly meeting of this section was held at the Victoria Hotel on Friday, March 3rd, Mr. I. Levinstein in the chair. After the passing of the minutes, Mr. Crippin addressed the meeting on the shortness of the time allowed to authors to correct their papers, and to the errors which occurred in the reports of the discussions on the papers. The Chairman suggested that the old rule, which for some unknown reason had become obsolete, be resuscitated. The rule was that those who took part in the discussion of any paper be entitled to revise their remarks, provided they did not materially alter the sense of their remarks.

The Chairman then read a communication from the London Council, which was to the following effect:—"The Council at its last meeting, as the outcome of its desire to ascertain the views of the Section of the Society on the subject of the Patent Law revision, passed the following resolution:—That the sections be requested to nominate in open meeting three representatives, to form part of a committee to consider the whole question of the Patent Laws. The London Council appointed the following gentlemen: Sir J. Evans, Sir H. E. Roscoe, Mr. Ludwig Mond, and Mr. E. Rider Cook."

The Chairman informed the meeting that letters had been sent to the sections who had written to the Board of Trade; and he then asked the meeting to nominate three gentlemen to form part of the committee. The three following gentlemen were elected: *Mr. Grimshaw*, proposed by Mr. Bell, and seconded by Dr. Bailey; *Mr. I. Levinstein*, proposed by Mr. Grimshaw, and seconded by Dr. Carl O. Weber; *Mr. Dreyfus*, proposed by Mr. Crippin, and seconded by Mr. Carter Bell. Mr. Crippin was previously proposed and seconded, but begged to withdraw on account of having shortly to go abroad on business.

The Chairman then called on Mr. George E. Davis to read his paper on "Some Experiences in the Manufacture of Crude Carbolie Acid." After describing the usual method prescribed for the manufacture of crude carbolie acid, the author pointed out that from his own experience it appeared that if the full quantum of caustic soda was employed the resulting "crude" would not crystallize. Further, he pointed out that in most tar works less caustic than is theoretically required is used, and proceeded to detail experiments which he had made upon the matter. In these experiments, by treating the carbolate of soda with three successive quantities of sulphuric acid, three portions of carbolie acid were thrown up, the first of which crystallized below 0° C., the second at 17° C., and the third at 23° C. The results obtained showed that the soda solution, having a preference for phenol over cresol, dissolved the phenols first and the cresols last. The author also described some experiments which he had made at the instigation of a gentleman who had a process for obtaining a greater yield of carbolie from the crude oil by acting on this oil with 19° Tw. caustic solution at a temperature of 66° C. instead of 27° C. It was pointed out by the author before starting the experiments that the whole of the crystallizable phenol is extracted by the ordinary process, in conjunction with a certain amount of uncrystallizable, and the outcome of the experiments showed that no advantage was to be gained by the extra heating.

After detailing the experiments made while deciding these points, the author in conclusion briefly described the West-Knight and Gall's process for the extraction of carbolie acid from "light oil." The reaction on which the process is founded is a new one. A mixture of milk of lime and sulphate of soda in equivalent proportions is used in lieu of caustic soda, the mixture in the presence of some phenoloid body, such as cressylic or carbolie acid, reacting with the formation of sulphate of lime and carbolate of soda. The carbolate of soda is separated from the magma of CaSO_4 by means of a filter press, and the carbolate decomposed with sulphuric acid, giving sulphate of soda, which can be used over again, and crude carbolie acid. The acid sulphate of soda solution resulting from the decomposition with sulphuric acid has been known to contain an appreciable quantity of carbolie acid, but this is recovered by neutralizing with milk of lime, leaving a mixture of sulphate of soda and milk of lime, which, when adjusted to equivalent proportions, is once more put through the process of decomposing the "light oil." In practice it has been found that the loss of carbolie through the precipi-

tation of the CaSO_4 in the oil is very small, and can be easily by washing with water.

In the discussion which followed the reading of this paper Dreyfus said he was pleased by the paper which had been presented, and showed them that there was another process for the extraction of carbolie acid other than the caustic process which was so costly. In his experience in the extraction of carbolie acid he was inclined to the method known as fractional separation, and advised the use of sufficient caustic soda to extract not more than 50% of soluble solids. In regard to the strength of caustic liquor used, he preferred 17° Tw., but it made no difference in the results whether caustic soda of 17° Tw. up to 22° Tw. was employed. As cresol had a good deal of carbolie acid in it, it was as well to continue the extraction afterwards with caustic of 22° Tw. The question of temperature was an unimportant one, as, from his experience, the extraction took place as well at the ordinary temperature as at 27° C. The mixer which had been described by the author was an excellent one for the mixing or washing of fluids; but, from his own experience of carbolie acid extraction, he found an air blower as simple and efficient as anything he had met with. His attention had been attracted by the West-Knight and Gall process to which reference had been made, and as he was experimenting on the process he hoped he should be in a position some future date to communicate the results of his experiments to the society.

Mr. Stenhouse corroborated the remarks of Mr. Dreyfus as to the matter of temperature, and drew attention to the carbolie acid which could be extracted from cresote of about 4° Tw., which, when treated with caustic of 17° Tw., yielded carbolie acid, and advised the use of this cresote in addition to the ordinary light oil.

Mr. Irvine said that his experience tallied with that of Mr. Stenhouse, and went so far as to say that he had no objection to caustic soda of as high as 25° Tw. The chief drawback in the West-Knight and Gall process was the precipitation of calcium sulphate, and he pointed out the method in which carbon dioxide is used, especially when it can, as it frequently may, be obtained for nothing.

Mr. Geo. E. Davis, in replying, said he was pleased that he had produced some discussion, as thereby much interesting and information which was not generally known, or to be found in the literature, had been elucidated, which would be recorded in the Journal of the Society. Referring to the strength of the caustic soda solution used, he said that so long as a constant quantity of soda was used, the thing, preference was to be given to the higher strengths, as the higher strengths were more soluble in the stronger solutions. In regard to the extraction of carbolie acid from cresol, this, he said, was done in the manufacture of sheep dip, which was really an emulsion of tar acids obtained from the higher acids with a 60° Tw. soda solution. He was of the opinion that the presence of carbolie acid in light cresote, but much depends upon what was meant by cresote. Some well-known firms were working, working what they called light cresote for carbolie acid. Ordinary cresote, however, often contained as much as 30% of carbolie acid, which was very little was really carbolie acid. He contended that the difficulty which was attached to the precipitation of the calcium sulphate in the West-Knight and Gall process was a substantial one, as in practice it did not obtain. The calcium sulphate was easily removed when the mixture was filter-pressed. The carbolate of soda was decomposed by CO_2 , the carbonate of soda was obtained by either process was the same, while the sulphate of soda when dried was fitted for sale, being of an excellent quality.

Dr. Bailey then addressed a few remarks to the meeting on "Smoke." He said that doubtless they were all aware that a number of experiments were being made in Manchester to determine the amount of smoke and solid matters which pollute the atmosphere, and to estimate the amount of light which is cut off from the city by smoke. Samples had been taken from all parts of the city during the past year, and special attention had been given to the composition of the atmosphere during fogs. The amount of sulphurous acid present in the atmosphere in normal tests was from 2 to 3 milligrams per cubic foot. In the case of a fog, it was from 30 to 40 milligrams per cubic foot. To measure the amount of light, they had adopted the process mentioned by Dr. Angus Smith, which depended upon the action of light upon a solution of potassium iodide and sulphate. They then estimated the amount of iodine set free, which was proportional to the amount of light received. Photometric appliances of this kind were expensive to be used for the purpose. The results of other experiments taken at Didsbury at 100 as their standard, showed the yearly amount of light cut off by smoke was: At Hulme, 49 per cent. of Didsbury; at Oldham-road, 55 per cent.; London-road, 60 per cent. Practically speaking, he found that town smoke kept off half the available light from the city. While it may naturally be supposed that it would be clearer in the city on Sundays, it was not so. That Hulme and Longsight, which were densely populated, showed little (if any) difference between Sundays and week days. Bailey pointed out the influence of light upon health, and what

remembered that bacteria are killed by six hours' exposure to the sunlight, the hygienic importance of good light is self-evident. The chairman (Mr. Ivan Levinstein) advocated the use of gas, and the cheapening of the same, to foster its more general use. He was pleased to notice that from Dr. Bailey's remarks it appeared that manufacturing smoke was not responsible for so many evil effects as it was generally supposed to be.

Mr. Geo. E. Davis said that he had frequently observed, in the neighbourhood of Pendleton and Pendlebury, how household smoke hung over those districts, while manufacturing smoke being emitted from a higher level was carried away by the wind and dissipated. He also drew attention to the absence of oily hydrocarbons in manufacturing smoke, which were present in considerable quantities in household smoke. He thought there was no need to apologise for adopting a chemical method of estimating the amount of light which reached the city, as it was the chemical rays which ought to be measured, since they were the rays which had the greatest action on bacteria.

As the discussion was one of exceptional interest, it was finally decided that the continuance of the same should be postponed until the next meeting.

Mr. Carter Bell then read a short paper on the purification of alcohol. He pointed out that considerable difficulty was experienced by analytical chemists in the use of alcoholic potash on account of the dark colour which results when KHO is added to alcohol. There were a great number of processes for treating the alcohol and overcoming this difficulty; but, out of the four or five which he experimented upon none gave satisfactory results. He had recently adopted the following method, which he thought would be of considerable service to analytical chemists, as he had found that the process so far gave satisfactory results. He took 500 c.c. of spirit, added 5 % of caustic potash and 25 grams of oil or fat to each 100 c.c. of alcoholic potash. He then saponified for ten minutes and distilled, when he obtained an alcohol which remained perfectly white on the addition of caustic potash. After some little discussion of a rather discursive nature, the meeting terminated. There were about 35 members present.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held at the offices, Mosley-street, Manchester, on Monday last, Mr. T. W. Killick in the chair.

A letter was read from Sir John T. Hibbert, acknowledging the congratulations of the Committee on the distinction of knighthood which has been conferred on him by the Queen. The Committee passed a resolution condoling with Mr. Alderman Joseph Thompson, their vice-chairman, on the death of his son.—Mr. Swindells, chairman of the Bollington Local Board, and Mr. Francis Greg, a member of the Board, waited on the Committee in regard to the pollution of the stream at Bollington. Mr. Swindells said he had known Bollington for over 60 years. In the old days all the mills on the brook were cotton mills. From those mills there was no nuisance whatever, and they saw the fish in the stream all the day through. But printworks and paper staining works and breweries had taken the place of the old cotton mills, and they saw the fish no longer at Bollington. At the same time the nuisance was really of very minor proportions. He would be glad to see the inspector of the Committee and any member, and they would have an analysis made of the water. The Local Board had asked Mr. Radford to prepare a scheme for dealing with the pollution of the river. He had done so, and they found that the cost would not be far short of £10,000. This was far too much with a district with a population of only 4,000, a population which was rather decreasing than increasing. The Chairman said £10,000. was a very excessive sum. Mr. Radford's scheme suggested the purchase of fourteen acres of land. There was surely no need for more than three or four acres.

It was decided that the Chief Inspector along with Dr. Neville should visit Bollington, and report to the Committee at the next meeting.

The deputation from Bacup was then introduced. The Town Clerk explained that the Corporation of Bacup was anxious to meet the wishes of the Joint Committee in preventing the pollution of the Irwell. The Corporation was in treaty with Haslingden and Rawtenstall to treat their sewage jointly. Mr. Groves remarked that the negotiations with Rawtenstall and Haslingden had been pending for some six years. The Chairman pointed out that while they were doing little or nothing at Bacup, they were also hindering the other two local authorities. A few general remarks were made by Alderman Shepherd, explaining to the Joint Committee what had been done recently, and he expressed his belief that an arrangement would be come to between the three authorities in the course of the week. The Committee decided to stay their hand for one month.

On the recommendations in the report of the Consulting Committee, Middleton was granted an extension of two months, as the conditions

as to the purchase of land which it was sought to impose were out of all keeping with the value of the land which they proposed to buy. Whitworth was moving slowly, but taking into consideration the smallness of the district the matter was adjourned for one month. Ashton-under-Lyne had a Bill before Parliament for borrowing powers, and therefore an extension of three months was granted, the Committee having no option under the circumstances. Audenshaw, seemed to be making slow progress; plans had been sent to the Local Government Board, so it was decided to suspend the summons, and to give a period of three months in which the inquiry to be held by the Local Government Board could be made.

Stockport was still delaying over the amalgamation with Reddish, and as in the opinion of the Committee there was just cause to suppose that such an amalgamation would not be effected, it was decided to give notice that action would be taken in one month unless steps were taken to cease polluting the river.

The report of Mr. Tatton, the Chief Inspector, was then read as follows:—

The extension of time granted to the following authorities has expired: Audenshaw, Ashton-under-Lyne, Hurst, Bollington, and Kearsley.

Audenshaw Local Board.—Application has been made for borrowing powers, and the plans and sections for the proposed sewage scheme have been deposited with the Local Government Board. The extra land required by the Board has been agreed for.

Ashton-under-Lyne.—The Bill promoted by this Corporation has been read a second time in the House of Commons, and has been referred to the Police and Sanitary Committee.

Hurst Local Board.—The sewage of Hurst will be dealt with under the powers being sought by the Ashton Corporation.

Kearsley Local Board.—The tanks at the outfall works are being constructed, and good progress has been made since the frost broke.

Bollington Local Board.—In December last I reported to you that a resolution had been passed giving an engineer instructions to prepare a report and plans for dealing with the sewage of this district; this report has been received, but the authority, as appears from a letter which was read to the consulting sub-committee, has taken no further action.

Stockport Corporation.—The plans for the sewage outfall works are prepared, but there has been considerable delay in submitting the scheme to the Local Government Board. I would suggest that the Joint Committee take action against the Corporation with a view to obtaining an order under penalty to complete the works within a definite period.

A report on the subject of manufacturers' waste waters has been printed and sent to each member of your committee.

It was decided to send a copy of the report on manufacturers' waste waters to manufacturers in the watershed. [This report will appear next week. Ed. C.T.J.]

The Chemical Sub-Committee then informed the Joint Committee that they had had an interview with Sir H. E. Roscoe as to the analysis of the effluents, etc., in the watershed. Sir H. E. Roscoe made two proposals, viz:—that he be paid £700. a year with travelling expenses, or a retaining fee of £200. and his assistant, Mr. Scudder, be paid two guineas a day with travelling expenses, and one guinea for each analysis. The Chemical Sub-Committee recommended the appointment of Sir H. E. Roscoe on the lines of the first proposal, for a term of twelve months, when the agreement should be terminable if not satisfactory to either party. Mr. Alderman Walmsley moved the recommendation, which was seconded by Dr. Hewitt. Mr. Noton moved that the appointment be deferred, and asked how much time Sir H. E. Roscoe was supposed to give to the matter. The amendment was seconded by Dr. J. G. Scowcroft (Bolton) on the ground that the fee charged by Sir H. E. Roscoe was excessively large and that the appointment was premature.

The Chairman said there were 800 works in the watershed, and the effluents from them were very different.

The notices to manufacturers expired in April, and therefore the matter was urgent. In another month the Committee would have to decide what to do.

Finally the amendment was lost, and the appointment of Sir H. Roscoe carried by eight votes to four. Mr. Alderman Walmsley called attention to the large amount of solids occurring in the Irk and Medlock as compared with the Irwell, and directed the attention of the Chief Inspector to the matter. A letter was read from the Ship Canal Co., stating that during the winter floods considerable quantities of ashes had been carried into the canal, entailing extra dredging, and urging the Joint Committee to hasten their work as much as possible on account of the rapidly approaching completion of the canal. The Chemical Sub-Committee was re-elected, with the addition of Mr. Worthington as a standing Consultative Committee. Owing to the first Monday in April being Easter Monday, it was decided to hold the next meeting on Monday, April 10th, 1893.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before Lord Justice A. L. Smith.)

CHAPMAN v. SOUTH METROPOLITAN GAS COMPANY.

THIS case which had been before the Court for ten consecutive days was decided on Monday last.

Sir Henry James, who appeared for the plaintiffs, said the action was brought by the owner and two of the tenants of a very extensive household property known as the South Bermondsey Estate, consisting of about 565 houses (mostly occupied by clerks and persons of moderate incomes, somewhat above the position of artisans), near London-bridge. The defendant company's gasworks were close to the property, and were under the management of an active gentleman of whom they had all lately heard—Mr. Livesey. The manufacture of gas proceeded without any cause of complaint until November, 1891, when the gas company proceeded to make use of their residual product of tar and gas, and produce from it sulphate of ammonia; and a chamber was erected with a steam pipe carrying off steam from the sulphate-house. Shortly after November, 1891, the dwellers in the houses on the estate noticed very unpleasant smells coming from the direction of the gasworks whenever the wind came from that direction, and damage to the paint on the houses soon became very apparent, the cause (as the learned counsel proceeded to explain) being, as they believed, the sulphuretted hydrogen coming from the gasworks, the sulphur therein reacting chemically with the lead in the paint. Various instances were then given of the property and things injured, and their relative position with respect to the works. The learned counsel submitted that whether the sulphuretted hydrogen came from the sulphate works or the gas works, the plaintiffs would be entitled to the judgment of the Court, if, in the former case, the production of ammonia did not come within the provisions of the defendants' local Act of Parliament, and, in the latter case, if they carried on their works so as to be a nuisance. There was no wish to shut up any part of the gasworks, but Sir Henry James submitted that if proper care were taken the sulphuretted hydrogen could be kept away. An injunction would be asked for that the defendants might not carry on their works so as to injure the property around, and damages would be demanded for past results. The neighbourhood was very thickly populated, and the tenants, after making constant complaints, looked forward to the present proceedings for protection.

Evidence was called to show the damage that was done by the emission of the sulphuretted hydrogen gas, and scientific experts were heard at considerable length.

Mr. Jelf, Q.C., in opening the case for the defence, said that if it should happen that judgment was in favour of the plaintiffs, the company would be inundated with claims, and, as a consequence, a great industrial enterprise would be ruined.—Mr. George Livesey, the chairman of the directors of the South Metropolitan Gas Company, was examined by Mr. Swinfen Eady. He said that since the houses had been erected on the other side of the canal the lime had been removed more expeditiously from the purifiers. Formerly the blue billy was stacked for weeks, but now barges were in waiting early in the morning, and as many men were employed in loading as possible. It was not a rotten-egg smell, but more of a mixed odour. At first ammoniacal liquor was only got rid of by paying the cartage. Then makers of artificial manures had taken it away free of cost, and finally had paid for the liquor. Large fortunes had been made by these manufacturers. He described the removal of the liquor at this period, and said that during the loading of the barges the smell of sulphuretted hydrogen was very strong. A descriptive account was then given of the process by which sulphate of ammonia became an article of commerce, and the attempts to cope with the emission of gases. Nothing was more familiar to him than the discolouration of lead paint in the neighbourhood of gas works. If there was an increase of paint smearing in the winter of 1891, he contended that it was due to atmospheric influence. Both the defendant company and the Gas Light and Coke Company had for the first time in their existence empty gasholders. Fogs had lasted for five days, and had kept the sulphuretted hydrogen hovering over the district. On being cross-examined by Sir Henry James, he said he could not specify any particular house on the plaintiff's property which had been affected before 1891. When passing that way he had smelled not only sulphuretted hydrogen, but other things. Speaking of the tarnishing of brasswork, he said he had suffered in the same way at Tulse-hill, and supposed it was one of the penalties of living in London. He did not believe that children had suffered by reason of the presence of sulphuretted hydrogen in the air in such infinitesimal quantities. Doctors were continually sending children subject to whooping-cough to inhale the fumes rising from the purifier.

There was, in his opinion, less illness in the neighbourhood of gas than anywhere in London. He did not own any property in localities. He then gave a detailed account of the quantity of consumed and the amount of sulphate of ammonia made at the works.

In giving judgment, the learned judge who during the hearing case had visited the *locus in quo*, said:—In his opinion the plaintiffs had established their case, and the various defences put forward by the gas company had, in his opinion, failed. It was sufficient for plaintiffs to prove that the sulphuretted hydrogen came from defendants' works; it was not necessary for them to prove exactly it came or the precise spot from which it came.

He therefore gave judgment for the plaintiffs as follows:—"I am of opinion that the mode in which the defendants have carried on their works did not, prior to November, 1891, occasion any nuisance which the plaintiffs had a legal right to complain, let an injunction be awarded to restrain the defendants from carrying on their works to occasion a nuisance or injury to the plaintiffs or their property."

Execution was stayed for three weeks pending an appeal.

BOWES AND OTHERS v. THE CAUSTIC SODA AND CHLORINE SYNDICATE.

(Before Lord Chief Justice Coleridge and Mr. Justice Hawkins.)

This case had arisen out of the formation of a syndicate for the purpose of working a patent for the application of caustic soda in the extraction of gold from its ore. The writ in the action was on a writ for the sum of £250, on an agreement of April, 1892, under which the syndicate were before December 31, 1892, to effect a sale of a patent which had not been done—or the allotment of shares to the plaintiffs or pay them that sum of £250. None of these things had been done, and the plaintiffs had issued a writ to recover that sum, and prayed for judgment for it summarily, under Order XIV., by which the syndicate proposed to set up as a defence that the syndicate had no right to the patent, and that the patent could not practically or commercially be worked, and, at a profit, and the Master gave them leave to defend; but the Judge at Chambers had super-imposed as a condition payment of the sum claimed; against which the syndicate appealed.

Mr. G. Lyons appeared on their behalf, and urged that the proposed defence was reasonable, and that the condition of payment of the whole sum into Court ought not to be imposed.

Mr. C. Martelli, on the part of the plaintiffs, contended that the condition was properly imposed, as the defence set up was not maintainable. The agreement was to work the patent, or get a concession to do so, or pay the money, and it must be taken that it was a valuable patent. [Lord Coleridge.—When I was Attorney-General I found that few of the patents which came before me were of practical value. It seems a reasonable defence.] It is submitted that the effect of the agreement is to pay the money for the option to the patent, so that the proposed defence is no defence at all, and money ought to be paid into Court as security.

The Court, however, thought otherwise, and allowed the appeal. Lord Coleridge said, in giving judgment, that the order made in this case was one he did not favour, as it imposed a condition which he thought, ought not to be imposed where, as in the present case, the defendants had a fair right to defend the action. It must first be decided whether the case was one in which Order XIV., which allows summary judgment to be signed, was fairly applicable at all, and then thought that it never was intended to apply to such a case as the present, in which there was a fair dispute as to the meaning of the document, and questions might arise which the defendants had a right to submit to a jury. That was a strong case for unconditional leave to defend the action; and, that being so, the condition of payment of the whole of the money into Court ought not to be imposed, and the appeal must be allowed.

Mr. Justice Hawkins agreed, and said the only question was whether under the circumstances it was reasonable to allow the defendants to defend the action. If so, then they ought to be allowed to do so without having to pay the money into court.

The appeal was accordingly allowed.

CORNWALL ASSIZES.

NISI PRIUS COURT.

(Before Mr. Justice Lawrence.)

LOCKE, MITCHELL, AND SAMPSON v. CARON CHEMICAL WORKS.

This was an action for damages brought by three farmers, named above, against Mr. R. J. Trythall, owner of the Caron Chemical Works. Mr. Bucknill, Q.C., and Mr. Clydesdale appeared for the plaintiffs, and Mr. Footer and Mr. McLeod for the defendant.

Mr. Bucknill explained that there were no pleadings in the case. The action was commenced in what was called the Chancery Division of the High Court of Justice, and came in the first place before Justice Kekewich, who transferred the case to this Court.

defendant, he continued, had carried on an arsenic factory in such a manner, according to the claims of the plaintiffs, that the fumes which came from the works had killed some of their cattle, had caused others to sicken, and had made it impossible for Locke in particular to carry on his little farm. The defendant, on the other hand, said that although up to a certain period that it was possible that poisonous fumes might have escaped from his factory, yet since that time condensers had been put up which made it practically impossible for such fumes to escape. Under the circumstances, he claimed not to be responsible for any damages, and also that he should not be restrained by injunction from carrying on his business in the way he was at present. The defendant's works had been in operation some six or seven years. They consisted of arsenic burning and arsenic refining. No nuisance was committed by arsenic burning, but it was in respect of arsenic refining that objection was taken. In the production of white arsenic powder, which came under the latter heading, poisonous fumes were allowed to get into the air unless every care was taken. Directly those fumes issued from the works the solids which they contained settled on the grass, and the cattle eating the grass got poisoned. The plaintiff Locke had a little farm of seventeen acres adjoining defendant's works. Subsequently to defendant starting the arsenic refining in April, 1892, he lost two or three head of cattle. A *post-mortem* examination of the animals was made by Mr. Olver, of Truro, and he certified that they died from arsenic poisoning. That certificate was shown the defendant and he apparently accepted the position, agreeing to compensate Locke for any other cattle that might die on his farm within the six weeks following. He also agreed to erect condensers and to stop the works when that was done. That seemed reasonable enough, and Locke sent his cattle to his father's farm not far off. On the 26th of August an agreement was entered into and signed by defendant, showing that at that time he was not suggesting that the cattle were poisoned by anybody else, which he did now. The condensers having been put up, in October Locke re-stocked his farm. The cattle had not been back long before they began to show signs of sickening. He informed defendant of this, who asked him to remove the cattle again. Locke refused, as he could not always be using his father's farm. On the 19th November plaintiff lost one of his steers, and Mr. Olver again certified that it had died from arsenic poisoning. Locke had altogether sustained a loss of £42, exclusive of money paid him by defendant prior to the action. He hoped to be able to show that other persons besides the plaintiffs had from time to time suffered from the arsenic fumes. What did they think the defence was? That, because the condensers were up, the mischief must have been done by Messrs. Harvey and Spargo's works, which were a greater distance away, and where no refining was done. Then the defendant tried to shift the onus on to the Cornish Arsenic Company, but it must be remembered that from the time each of those firms started not a single complaint of the poisoning of cattle had been made against them. The most amusing defence still remained for him to tell them of—it was a brilliant idea. It was that certain carts laden with arsenic soot went along the road, that the soot fell out and went into the puddles, that the puddles emptied into the Caron river, and that the cattle were poisoned in that way. The fact was that, although the defendant had had condensers put up, which might be perfect in theory, when the masters were not present it was the easiest thing in the world for the workmen to so charge the furnaces and carry on the business as to allow the fumes to escape from the chimney and poison the surrounding country.

Several witnesses were called, testifying to the loss that had been sustained by arsenic poisoning.

The hearing was adjourned.

Reports of Companies.

THE ROSARIO NITRATE COMPANY, LIMITED.

The fourth ordinary general meeting of the Rosario Nitrate Company, Limited, was held last week at Broad-street House, Mr. Archibald Balfour presiding. In moving the adoption of the report, the chairman reminded them that at their meeting 15 months ago he dwelt at considerable length on the position which the company then occupied, and the causes which had produced the rather anomalous state of affairs which then obliged them to carry forward a large sum to the credit of profit and loss, to suspend the amortization of their debentures, and, consequently, not to declare any dividend on the share capital. On the present occasion the exact reverse was the position. During the 15 months to September 30 last they disbursed £126,720 in the sinking fund for the debentures, and when reserves were taken into account a further sum of £34,000, making altogether, in the financial statement now submitted, no less than £161,000 devoted to the payment of their debenture capital, leaving them £15,731 only, out of which they were enabled to recommend a dividend of 2½ per cent.

Their company had been 3½ years in existence on September 30 last, and in that period they had applied £219,000 to sinking fund, £123,000 in current coupons on debentures, and £60,000 in dividends on the share capital. This made a total of £402,000, or, on an average, £115,000 per annum. It was quite true that the shareholders had received for the 3½ years in question a dividend averaging only 2.85 per cent. Ever since the company started, however, they had been through, in one way and another, a very bad time in the nitrate trade. There had also been the troubles through the civil war in Chili; and in the selling price of their product there had been violent fluctuations. These facts must be taken into account in considering the results he had mentioned. In the 15 months up to September 30 their gross profits had been £148,000, although their works had only been going half-time. The total amount of their production in this period had been 1,724,000 quintals. Correcting that quantity down to the proportions of 12 months it would be equal to 1,380,000 quintals, whereas he was very much within the mark in stating that their productive capacity was modestly estimated at 2,500,000 quintals. The restrictions of the production was owing to the arrangement which had been made by the nitrate producers, commonly called the Nitrate Combination. Nearly three years ago now the nitrate trade, owing to different causes, had drifted into a very unsound position. The total consumption all over the world was then, as it was now, from 800,000 to 900,000 tons per annum, whereas the productive capacity of all the nitrate works on the west coast was fully half as much again. The result was inevitable, and the selling price of nitrate dropped to a ruinous figure. That led to the nitrate producers entering into an arrangement to reduce the total output of the article to a point approximately equal to the total consumption of the world. Simultaneously, however, with the arrangement for restricting their output they had been endeavouring energetically to extend the use of nitrate all over the world. The arrangement would continue to exist up to March, 1894. At the present moment nitrate was at £10 a ton, but if any activity was to prevail in their trade it was at the present time, and they would probably see a fall in price when the season was over. The combination had resolved on having an exhibit at the World's Fair at Chicago, and the Chilean Government had agreed to contribute £2,000 towards the expense of the exhibit, the combination finding an equal sum. At their meeting last year there was some discussion with regard to altering the conditions of their debenture capital. Fifteen months ago their outstanding debentures amounted to £596,000, whereas by April 1 next that amount would have been reduced to £420,000. The conditions of the nitrate trade had also very much improved in the interval; and he believed there were certain indications that they were on the road to a more healthy state of matters regarding the financial position of the markets in London. They had been constantly negotiating regarding the question referred to, and within the last ten days the negotiations had taken a very favourable turn. He could not give them any more details on the present occasion, but they hoped that in the spring or the summer they would be able to call a meeting and to submit a scheme which he trusted would be satisfactory to them all. Mr. George Petrie seconded the motion. The motion was unanimously adopted, and a dividend of 2½ per cent. was afterwards declared. At an extraordinary general meeting held subsequently, a resolution was passed altering clause 41 of the articles of association, the directors, at the request of an influential body of shareholders on the Continent, having agreed to the issue of share warrants to bearer.

THE DEE OIL COMPANY.

EXAMINATION OF DIRECTORS.

At Chester Castle on Monday, before His Honour Judge Sir Horatio Lloyd, a public examination took place of the directors and officers of the Dee Oil Company, Limited, against which a winding-up order was made in the High Court on the 11th April, 1891 (vide C.T.J. No. 223, p. 127). Mr. S. Smith, who appeared on behalf of the debenture holders, stated that the trade formerly of the Dee Oil Company, Limited, of Saltney, Flintshire, had for the last two years been carried on by Mr. L. Voisey, co-trustee, as receiver and manager appointed by the court. The business had been sound and profitable, and had led Mr. Voisey and himself to believe that if the company was reconstructed the business was capable of development, with the prospect of the debenture holders ultimately realising their debt and interest in full. A scheme of reconstruction had been agreed upon.—Mr. S. Wheeler, assistant official receiver, London, stated that the order for public examination was made in February, 1892. That examination was attempted to be held in London, but it was then found a very important book called a private ledger, which was alleged to contain a copy or all the balance sheets prior to the formation of the company into a limited company, was missing (vide C.T.J. No. 256, p. 264). The examination was adjourned with a view of allowing a search to be made for the book, and a private examination was held before the Chester Registrar in July last, with the same object, but unfortunately without any

success. The inquiry had been delayed with the hope that some satisfactory proposal would have been made by the debenture holders to the unsecured creditors and shareholders of the company. The debenture issue amounted to £50,000., and £30,000. of these debentures was held by the nominees of the vendor to the limited company. An application was made on Saturday last in the High Court on behalf of the debenture receiver for the postponement of the examination for two months on two grounds—(1) that the inquiry was likely to prejudice the sale of the business, (2) that the debenture holders were contemplating a scheme of reconstruction, under which it was proposed to issue deferred shares in the reconstructed company to the creditors and shareholders of the old company. Though considerable pressure was brought to bear upon him, the Official Receiver felt it his duty to decline to concur, on the ground that the debenture holders had already been in possession of the assets for two years, and had consequently had plenty of time to carry out any such scheme; and, further, that money had been obtained from the public by the promoters of the company upon a prospectus which contained statements open certainly to very grave question.—John Thompson, Netherleigh House, Chester, stated that he was a sleeping partner with Mr. Deeley in the Dee oil business from 1875 up to the date of the formation of the new company in 1888. In 1887 there was a loss, and prior to the formation of the limited company they were being pressed by Parr's Banking Company, who were creditors for £30,000. The bank held as security for the overdraft the deeds of some of the freehold property at Saltney, and also some private securities of his own. The missing private ledger was kept under lock and key at the office, each partner having a key, and he last saw it when an income-tax surveyor came down from London to make an inspection of the accounts in September, 1888. The surveyor's attention had been drawn to the following paragraph in the prospectus of the new company:—"I hereby certify that the average yearly profits of the Dee Oil Company, Saltney, for the past ten years, 1878 to 1887, both inclusive, have amounted to £17,155., and in addition to this profit there has been carried to a plant depreciation fund an average yearly sum of £1,725. These figures are extracted from the company's private ledger, the balance sheets in which have been prepared by me as their auditor for the past eight years. (Signed), J. E. Edwards, of the firm of Edwards, Son, and Warnsley, accountants, Chester, 18th February, 1888."—Witness I had nothing to do with that report.—Mr. Wheeler: A report of that character from a highly respectable firm of accountants, would be likely to carry very great weight with the public?—Witness: I suppose that was the intention; but I hope you don't consider me a party to that report.—Mr. Wheeler: No, I am not suggesting that.—Witness (continuing) said before the formation of the new company he transferred his interest in the business to Mr. Deeley, receiving in acknowledgment £15,000. worth of shares in the new company. His capital at the time was £37,000. The liability to the bank of £30,000. was not discharged by Mr. Deeley, and he continued to be equally responsible for the overdraft. Mr. Wheeler: Is it a fact that the result of the last three years' trading had been of such a character as to frighten you out of the business on any terms?—Witness: No, nothing of the sort.—William Clarke Deeley, general manager of the company, stated that he did not sign the prospectus containing the auditor's report. He asked Mr. Edwards to draw up for the promoters of the new company a certificate of the profits for the past ten years, but it was never intended to be inserted in the prospectus. It was used by the parties who drew up the prospectus for a purpose for which it was never intended. He was prepared to swear he knew nothing of the whereabouts of the "private ledger." In 1887, instead of a loss, there was a profit of £7,500., and witness himself drew £3,000. In the three years' existence of the limited company the directors' fees amounted to £5,500., there being practically no profit the first year and a loss of £13,500. the second year. He believed the figures in the auditor's certificate as to the profits between 1878 and 1887 to be absolutely correct. The Saltney property was valued by Messrs. Churton, Elphick & Co., Chester, at £101,148., and at the time of the formation of the company he set it down as £79,273.—a difference of £21,000. Witness contracted to purchase Mr. Thompson's share of the partnership just before the formation of the limited liability company. Of the £82,000. witness was to receive of the purchase money, he did not get one halfpenny in cash, all that was paid to him being £30,000. worth of debenture bonds and £51,800. in shares. The bank objected to the overdraft remaining so long at £30,000. He really could not say whether the suggestion to form a limited liability company came from the bank, but his impression was if it was not conveyed to him directly he was led to infer that the way to pay off the overdraft was to sell the business to a limited liability company, and thus get more capital into the concern. One of the draft prospectuses was shown to Mr. John Dunn, the then general manager of Parr's Banking Company. Mr. Orris received £3,000. for his services in promoting the company, and £3,000. was paid in cash for advertising. Mr. Frederick Ford, the sub-promoter, assisted in the preparation of the prospectus, but witness took little part in it. Asked as to whether another firm of auditors, Messrs. Elliman & Co., of London, were asked to prepare a report for

the prospectus, witness replied in the affirmative, but he did not know the result of Mr. Orris's application to those gentlemen. He knew that they declined to give a report in terms which were satisfactory to the promoter. Witness met Mr. John Thompson by private arrangement, along with the late Mr. J. E. Edwards, at Chester Town Hall, took the private ledger with him, from which Mr. Edwards and Thompson took the figures they wanted. When witness handed Edwards's report to Mr. Orris the latter remarked that it was satisfactory, but said it was a pity that a dividend of 15 per cent. had not been shown. Witness did not tell Mr. Orris that the average of £17,000. a year referred to in the prospectus had not been shown the year 1887, nor was Mr. Orris curious on the point.—Mr. Wheeler: You did not convey to Mr. Orris the fact that before the formation of the company your profit was nothing like £17,000.?—Witness: Oh, yes; on previous occasions. I told Mr. Orris we had on a bad year, and he said, "That is nothing out of ten."—Mr. Wheeler: Did Mr. Edwards at his interview with you ever remind you of the fact that no such profit as £17,000. had been made in the year 1887?—Witness: Yes, he knew that as well as I did.—Mr. Wheeler: Did you discuss it with you?—Witness: There was no use discussing it. I knew it.—Mr. Wheeler: Did Mr. Edwards suggest that interesting information should be added to the report? No.—Witness: I suggest it was information to which the public were entitled?—Witness: Questioned as to the missing private ledger witness admitted that although this was the most important book connected with the company it was the only one now missing, and he could not give any explanation as to its disappearance. This ledger was kept in a locked box, and was a locked book. Although the bank knew the contents of the ledger making an average profit of £17,000. a year, and although the security for their overdraft, they (the bank) were always pressing the company and objecting to the amount of the overdraft. In proof of this the company they offered the public £100,000. worth of shares although only £15,000. or £16,000. was taken up. They went to the directors, but that was the action of the directors before witness came in. The blame must not be saddled upon him.—At the conclusion of his evidence, the witness stated that at a meeting last Wednesday evening over which the managing director of Parr's Bank presided, the managing director said he believed the company was now so sound and healthy that he was quite prepared to admit the creditors for the overdraft, the pound, giving them second shares to carry 5 per cent. The ordinary shareholders were to be admitted, practically receiving the value almost to any amount they liked, and witness would give £8,000. for the profits of the present year when they came in. Evidence was also given by Thomas Makin, one of the directors, who said he considered the company a flourishing one before it became a limited liability company, and by Mr. Warnsley, accountant, who stated that Mr. Edwards, his partner, was the only person in the firm who had access to the private ledger.—The examination was then adjourned for the purpose of hearing further evidence in London.

THE HULME OIL WORKS QUESTION.

THIS question again came up at the last meeting of the Manchester City Council. It will be remembered that when this matter was being discussed (*C.T.J.* No. 295, p. 23), the Medical Officer was deputed to visit the works. It was now shown by the minutes of the Sanitary Committee that the Medical Officer had again visited the premises in Erskine-street, Hulme, where it is proposed to establish a business of oil refining. He saw no reason to vary his recommendation of December 14, in which he advised the Council not to permit the premises to be used for such a purpose. The committee decided to adhere to the resolution of December 21, declining to allow the premises to be used for such business.

Alderman Walton Smith moved the adoption of the minutes of the Council. Councillor M'Dougall, in seconding the motion, said that the committee's action was that the works would be a nuisance to the neighbourhood. They were borne out in this by the medical officers who had several times visited the new premises as well as the old, where the business was at present carried on.

Councillor Gibson moved an amendment that the proceedings of the Sanitary Committee be approved, with the exception of the recommendation relating to the establishing of these works, and that the Council should establish such an establishment. He pointed out that the works were for refining, not rendering of fat; all that was to be done was that the oil was warmed. There was no more smell than was from a druggist's shop—in fact he questioned whether there was much. The proposed premises were opposite his own works, and it likely he should agree to the establishment of a business so close to his likely to be a nuisance? The fact of the matter was, that the works were getting a little bit over-governed. It seemed to him they should

encourage industry than endeavour to drive it away. They talked about bad trade, and yet they were doing all they could to drive it into other districts. In the neighbourhood of Erskine street there was a kamptulicon works, a blacksmith's shop, two breweries, and a chemical works, and it was idle to say that an oil-mixing business would be a nuisance in such a district. This was a matter upon which any man with eyes, a nose, and common sense could arrive at a decision without the aid of the scientific knowledge of the medical officer of health.

Councillor Mainwaring, who seconded the amendment, said he knew the business was not obnoxious. He could not see why the Sanitary Committee should attempt to interfere, or try to hamper the proceedings of tradesmen in the city. They ought to give encouragement to tradesmen to stay in the city. If the refusal to allow these works were persisted in, the man would simply go a street further away, into the district of the Stretford Local Board.

Sir John Harwood remarked that in this case a serious injustice was going to be done, and he found that the preponderance of evidence was decidedly in favour of Mr. Gibson's view.

Councillor Samson said they were bound to listen to the advice of the medical officer.

Councillor Williams said he would, if speaking satirically, say if this poor man could not get located anywhere else in Manchester, send him up to Clayton. (Laughter.) This man had been in the neighbourhood for years without let or hindrance from anyone, without any complaint from anyone, and yet it was now proposed not to allow him to carry on the business in these new premises. The position taken up was not fair.

Councillor Bagnall said he was satisfied that there was not the slightest ground whatever for indicting the business as a nuisance. There was no possibility of it being injurious to health in any shape, whether in a residential neighbourhood or otherwise. He had carried on a similar business in various parts of the city without any nuisance or a single complaint.

Councillor Simpson referred to some remarks made by Councillor Gibson, in the course of his speech, about the medical officer, and pointed out that such language as had been used would prevent public officers from exercising that independent judgment which was necessary in all these matters.

Amid loud cries of "vote," Councillor Birkbeck defended the position taken up by the committee; and Councillor Dr. Aldred said he had visited the premises on the previous day but did not notice any nuisance. (Hear, hear.)

The amendment was carried, and afterwards (as the substantive motion) received the approval of the Council.

Parliamentary Jottings.

ROYAL COLLEGE OF SCIENCE.

IN the House of Commons last week in answer to Sir Henry Roscoe, Mr. Shaw Lefevre said: The accommodation at the Royal College of Science is now undoubtedly inadequate, and in my opinion new buildings must be undertaken at some early opportunity. Block plans were drawn up in 1891 by the professors of the Royal College of Science, showing a suggested appropriation of the land on the south side of the Imperial Institute-road, for the purposes both of the Royal College of Science and of the Science Museum, and these plans were submitted to the Office of Works; but that department pointed out that it would be premature for them to consider the plans until the Science and Art Department had obtained the sanction of the Treasury to an organization of their teaching and exhibition establishments on the scale contemplated in the plans. I understand that the Science and Art Department is now in communication with the Treasury in this sense.

Sir H. Roscoe asked when the report from the Science and Art Department would be issued.

Mr. Shaw Lefevre.—It is not in the nature of a report that can be issued to Parliament, but I shall be happy to show it to the hon. member.

ACCIDENTS IN MINES.

In answer to Mr. D. Thomas,

Mr. Asquith said: The number of deaths caused by defective pit-ropes and chains during the past ten years is reported to be 20, or an average of two per annum, in metalliferous mines, and 46, or an average of 4·6 per annum, in coal mines. There is at present no official test applied to ropes or chains. My hon. friend is aware that by the fifth general rule of section 49 of the Coal Mines Act, 1887, it is the duty of the mineowners to have the ropes and chains examined once in every 24 hours by a competent person. I have consulted the

mines' inspectors, and have come to the conclusion that it is undesirable to relieve the mineowner of his proper responsibility in this respect, and, as at present advised, I do not propose to institute any official test for these ropes.

A BILL on the adulteration of artificial manures and feeding stuffs is being prepared by the Board of Agriculture, and will shortly be laid on the table of the House.

EXPORTS OF ALKALI AND BLEACH.

The following figures, which are taken from the Official Foreign and Colonial Statistics of the U.K., give the amount and value of alkali bleaching materials shipped to the undermentioned countries during the month of January, 1893, as compared with the same month in 1892:—

ALKALI.

PORT.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
Russia	10,798	6,262	5,926	2,703
Sweden and Norway	3,232	7,858	1,112	2,234
Germany	2,367	3,714	1,088	1,394
Holland	1,886	2,181	911	775
France	5,213	7,304	2,425	3,161
Spain and Canaries	46,253	28,366	21,503	13,142
Italy	11,791	15,570	5,468	6,115
United States	244,562	392,351	86,125	127,026
Australasia	9,710	6,472	3,550	2,487
British North America	5,704	14,339	1,790	4,419
Other Countries	56,866	67,886	22,617	25,733
Total	398,382	552,303	152,515	189,189

BLEACHING POWDER, &C.

PORT.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
United States	60,210	76,129	23,747	33,230
Other Countries	25,110	28,719	9,319	11,209
Total	85,320	106,848	33,066	44,439

EXPORTS OF PETROLEUM FROM U.S.A.

THE chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of December, 1892, and during the 12 months ending December 31st, 1892, as follows:—The total value of the shipments for December was £727,707., as against £775,562 in December, 1891; and for the 12 months ending December 31st, 1892, £8,456,632., as opposed to £9,070,391. in 1891. The shipments were as follows:—

CRUDE PETROLEUM.

	Gallons.
Total for December, 1892	12,453,024
Total for December, 1891	11,542,099
Total for 12 months ending December 31st, 1892	104,012,829
Total for 12 months ending December 31st, 1891	94,926,424

NAPHTHAS.

Total for December, 1892	916,647
Total for December, 1891	1,867,213
Total for 12 months ending December 31st, 1892	16,351,340
Total for 12 months ending December 31st, 1891	11,398,085

ILLUMINATING.

Total for December, 1892	53,189,559
Total for December, 1891	45,195,547
Total for 12 months ending December 31st, 1892	586,406,366
Total for 12 months ending December 31st, 1891	526,972,018

LUBRICATING.

Total for December, 1892	2,845,648
Total for December, 1891	3,477,455
Total for 12 months ending December 31st, 1892	33,805,128
Total for 12 months ending December 31st, 1891	33,068,716

RESIDUUM.

Total for December, 1892	71,526
Total for December, 1891	15,456
Total for 12 months ending December 31st, 1892	329,574
Total for 12 months ending December 31st, 1891	932,692

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- J. Z.—It has been sent.
 W. S.—Thanks for letter. We should like to hear further from you if the matter is taken up.
 B. L.—We shall be glad to hear from you at any time.
 R. S.—Why not try sodium peroxide? It is conveniently prepared.
 S. AND F.—We should be only too pleased to do so.
 G. C. D.—We trust you will continue to favour us in the future. We are always pleased to receive such information.

THE "DAILY CHRONICLE" AND THE CHEMICAL AND PHYSICAL SOCIETY OF THE UNIVERSITY COLLEGE, LONDON.

(To the Editor of the Chemical Trade Journal.)

SIR,—When the *Daily Chronicle* stated that the real object of the annual meeting of the above society "turned out" to be a demonstration on behalf of the United Alkali Co. by way of protest against the articles written under the head of "Death in the workshop," it erred in about the same degree, and in similar manner, as it did when writing that Dr. Arlidge had published the "entirely deadly fact" that the average life of the blacksmith is only eighteen years!

As a matter of fact no manufacturers were specially invited, but some three hundred tickets were sent out to members of the Chemical Society, and Society of Chemical Industry, as well as to members of the medical profession. Drs. Arlidge and Hein did receive special invitations as being specially conversant with the subject of the address. The fact that Mr. Muspratt and Mr. Carey came from Liverpool to hear the address and be present at the meeting, I think speaks volumes not only for them, but also for the United Alkali Co., as indicating that being under false charges of inhumanity, they actually possessed sufficient sensitiveness to such false charges, as to induce them to make so long a journey in view of the possibility of saying a word in repudiation of the said charges.

I presume the *Daily Chronicle* would have persons against whom "grave charges" have been brought stay at home and keep very quiet, even if the "grave charges" could be shown to be false. As to the "grotesque statements" of Mr. Muspratt with respect to the advent of the commissioner of the *Daily Chronicle* in Widnes in the evening, and the subsequent statement of that commissioner that he knew all about it, having read the subject up and visited St. Helens and elsewhere; I think a great deal of the real grotesqueness of many of the reports in the *Chronicle* was due to just such perfunctory methods of inspection.

The fact that I was once closely connected in an official sense with alkali works is, I observe, taken as a special disqualification, and I must hence conclude that a similar degree of ignorance of the subject I was dealing with in my Address, to that of the writer of the reports on the sufferings of the alkali workers, would have been counted to me as a virtue.

I am, yours, etc.,
 WATSON SMITH.

Trade Notes.

THE WIDNES ALKALI CO.—A case has been settled recently, which has occupied Vice-Chancellor W. Fothergill Robinson, Q.C., in the Lancashire Chancery Court for several days during the past month. The following are the chief facts in the case: On the formation of the United Alkali Co., in 1890, the shareholders of the Widnes Alkali Co. voted to sell their works for a sum of £345,000, of which £45,000. was to be given to Mr. C. E. Barlow, J. R. Wylde, and G. H. Bolton, directors of the Company, for loss of position. A motion was now asked on behalf of George Y. Bolton, who held three shares in the Widnes Alkali Co., and Elizabeth Bolton, who held 112 shares, that this sum of £45,000. be refunded to the shareholders, because both the applicants were absent from the meeting at which the allocation of the £45,000. was proposed, and no mention of the intention of such an allocation was made on the notice convening the meeting. Secondly, because a general meeting had no power to vote money in this way; and, thirdly, because the compensation for loss of position was not *bona fide*, since Messrs. Barlow & Wylde had since been appointed directors of the United Alkali Co., at the same salary as they received from the old company, namely, £1,500. The payment of the £300,000. pur-

chase money had been made in shares, distributed *pro rata* among the shareholders of the old company, and the £45,000. divided among the directors had likewise been paid in shares. At the conclusion of the hearing on February 10th, 1893, the Vice Chancellor reserved judgment, which he has just recently given, to the following effect: The allocation was *ultra vires*. There was no satisfactory evidence to show that the express consent of the applicants had been obtained. The applicants were, therefore, to have their proper shares of the £45,000. As to costs the Vice Chancellor doubted whether they had adopted the proper form of proceeding—by motion instead of action.

TOLUIDINE-SULPHO ACID.—This compound is not, as stated last week, dutiable under the New Tariff Act of the United States at 18 per cent., but at 35 per cent. *ad valorem*.

DISCOVERY OF COAL IN ESSEX.—It is stated that some excitement prevails at Braintree in consequence of the finding of a seam of coal on Saturday at Great Coggeshall, at a depth of between fourteen and fifteen hundred feet.

MESSRS. ELLIS AND GRAHAMSLAY have, we learn, been appointed agents for the well-known firm of tube manufacturers, Messrs. Lloyd and Lloyd, Birmingham, whom they will represent at Newcastle-on-Tyne and in the North.

ARBITRATION IN GERMANY.—Five new Industrial Courts of Arbitration are to be established in Germany to deal with disputes between miners and their employers. Up to the present there has been no such court for the mining industries.

ANOTHER AMMONIA RECOVERY PLANT.—A plant of an extensive nature is to be erected shortly by Messrs. R. and J. Dempster, of Newton Heath, Manchester, in Ayrshire, at the Andeer Works of the Glegarnock Iron and Steel Company, to recover the ammonia from the waste furnace gases.

STEARINE WORKS AT DIJON.—A company has been formed recently at Dijon to establish Stearine Works. The capital of the Company is £50,000. of which the greater part has already been subscribed. The President is Mons. J. Pastrie and the Directorate includes the names of a number of men who are experienced in finance and the Stearine trade.

FIRE AT AN OIL CLOTH WORKS.—About eleven o'clock on Monday last a fire was found to have broken out at the works of the Openshaw Oil Cloth Company. The fire burned fiercely till about two o'clock, when it was partially got under, but it was not till night that the fire was completely subdued. The damage done was very considerable.

A NEW LUBRICANT.—A Lubricant has just been introduced by Messrs. Wells and Co. of Miles Platting, Manchester. It is of an olive green colour, being a solid hydrocarbon which does not become decomposed under the influence of high pressure steam, and therefore claims to leave no deposit in the cylinders when used for compound triple expansion engines. The lubricant will be known as "Wells' Solihyar Engine Tallow."

A NEW TASMANIAN INDUSTRY.—A most extensive deposit of carboniferous limestone has been found in Maria Island, a dependency of Tasmania. When treated this limestone yields without any additional ingredients a Portland cement of high quality. It has a Sp. Gr. of 3.152, is of a greenish colour. The average tensile strength with a test block of neat cement 14 days old was 646 lb. to the square inch. It is specially adapted to the manufacture of artificial stone.

TREATING GALVANIZERS' WASTE.—A process patented by Mr. R. J. Brice, for treating salammoniac skimmings and zinc ashes, is as follows:—The skimmings are melted in a pot, and then disintegrated by pouring into a bath of boiling water, (any molten zinc having been previously drawn off from the bottom of the pot), milk of lime is then added to the disintegrated mass, which throws down an oxysulphide of zinc, which is separated from the solution by passing through a filter press, and dried. The product may be used as a pigment. The ammonia is obtained by boiling the solution just referred to with slaked lime. Any small particles of metallic zinc which may occur in the zinc ashes are separated by screening.

FALL OF ANOTHER CHIMNEY.—On Saturday evening, about half-past five o'clock, a chimney at Messrs. Sullivan's chemical works, Widnes, collapsed, and two men lost their lives. It appears that the chimney, which was 90 ft. high, had been damaged by the recent storms, and Messrs. Whitehead & Co., steeplejacks, Liverpool, were engaged to repair the defective portion. With this object a pole scaffold was put up at the top for removing about 6 ft. of the coping and brickwork, which had been eaten away by gases emitted from the salt-cake department. After an iron band was removed seven men were set to work to remove the bricks one by one, and while this was being done the defective portion of the chimney collapsed, carrying with it a portion of the scaffold and two men who were upon it. The men were precipitated to the ground from a height of 85 ft. Several other men left the scaffolding just before the collapse of the chimney.

SODIUM NITRATE SHIPMENTS FOR FEBRUARY.—According to the report of Messrs. Dobell and Co., Liverpool, 49,500 tons of sodium nitrate were shipped from the West coast during February; against 65,000 in the same month last year. The shipments for the last year as compared with this year are as follows:—

	1893	1892
Deliveries in U.K. and the Continent, February ..	102,820	97,260
Stock in U.K. and Continent, 28th February ..	180,050	207,470
Quantity afloat for Europe, ,, ,, ..	203,000	320,000
Visible supply to end of June	383,050	527,470

THE PALM OIL TRADE OF LAGOS.—The great fluctuations in value which are revealed by the statistics of the colony of Lagos, may be accounted for in three ways, the decrease in the price of palm oil owing to the competition of mineral oils, the natural deterioration of the productiveness of the palm, and the blocking of the trade outlets by the middlemen in the interior by their excessively exacting demands. About 1863 shippers could realize about £52. a ton. The following figures, however, show the price per cwt. in England for the last ten years:—

	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891
s. d. s. d. s. d. s. d. s. d. s. d. s. d. s. d. s. d. s. d.										
Highest ...	36 3	42 3	40 3	29 0	20 0	27 1½	21 0	23 9	29 0	25 0
Lowest ...	30 0	36 6	29 6	25 0	23 6	18 6	19 1½	22 0	22 0	23 9

In 1891 the figures for the first seven months only are given.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The benzol market is reported somewhat steadier, and 1s. 8d. for 90's and 1s. 5d. for 50/90's is now asked, but as a matter of fact there is no business doing at this price.

The sulphate of ammonia market has moved nicely upwards, and the improvement is even exceeding the expectations of the most sanguine. £11. 15s. is now quoted at all the country ports, and there seems to be a good prospect of a further advance. Beekton is now £11. 15s. In London outside makes there is nothing offering, but certainly £11. 15s. would be freely paid if it could be secured. Sulphate has never been known to be so scarce for many years.

REPORT ON MANURE MATERIAL.

There has been more doing, and prices for nitrogenous material are decidedly better on the week. Phosphates remain without alteration in values.

There are sellers of 75/80% Florida phosphate rock at 8d. per unit c.i.f. to U.K., and it is reported that a fraction less has been accepted. Peace River rock is quoted 7d. per unit, and hot air-dried South Carolina River rock offers at 6½d. c.i.f. to U.K. in cargoes.

The position of River Plate cargoes of bones has improved somewhat, and £4. 2s. 6d. refused for Continent, £4. 5s. asked. Crushed Kurrachee bones offer on spot at £4. 2s. 6d., ex store, and for shipment at £4. 1s. 3d., ex quay. From store £4. 5s. to £4. 7s. 6d. required for Bombay bone meal; £4. 3s. 9d. paid, ex quay, for near arrival; and £4. 2s. 6d. would do for forward shipment.

Nitrate of soda is quiet, but very firm. On spot the value is 10s. for ordinary quality, and 10s. 1½d. for refined. Due cargoes are worth about 10s., and January shipments 9s. 9d. down to about 9s., according to sailing date.

There is good demand for dried blood, for export, and 12s. would probably be paid for high test, finely ground, in doubles f.o.b. Liverpool. Home buyers cannot pay anything like the price.

MISCELLANEOUS CHEMICAL MARKET.

There are no changes to report in the position of any of the staple products of the alkali trade. Business continues brisk in bleaching powder, and the price is firmly maintained at £8. nett per ton at makers' works, and £8. 10s. f.o.b. Liverpool and Tyne. In caustic soda the demand is moderate, and the prices are steady as heretofore, viz.: f.o.b. Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s.; 10 ton lots and upwards. Soda ash is well sold for prompt and forward delivery in all

qualities, and spot market values are without change. Leblanc makes 1½d. to 1¾d. per degree f.o.b., ammonia alkali 58%, 1¾d. per degree, in casks f.o.b. Recovered sulphur quiet at £4. 2s. 6d. to £4. 5s. on rails. For vitriol and muriatic acid there is the usual demand, and no alteration in values. Soda crystals remain at £3 per ton, rails makers' works. Chlorate of potash, 9d. to 9½d., and soda 10d. per lb., are quotations for re-sale lots. Makers are fully engaged for their production for some time to come. Sulphate of copper still quiet at £16. 5s. f.o.b. Potash carbonate is slightly easier at £17. 15s. for 19% c.i.f. In brown acetate of lime there is little doing; spot price £6., and grey £10. 15s. per ton. White acetate of lead is steady in price. Acetate of soda, £17. 15s. c.i.f. White powdered arsenic still scarce, and price firm at £13. 10s. to £13. 15s. nett per ton. Aniline oil and salt are dearer, in consequence of higher prices now quoted for benzol. Carbolic acid crystals firm in price at 7½d. for 39/40, and liquid carbolic acids generally are also in brisk demand. In sulphocyanides there is very little doing. Yellow prussiate of potash, 9¾d. Bichromates unchanged. Chloride of zinc and all chemicals generally used in the cotton districts are at a discount stocks being largely in excess of requirements.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at 40s. 8½d. cash. Middlesbrough 34s. 2d. cash, and Hematite 46s. cash. Copper easier: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 6s. 3d. to £45. 15s. cash, and £45. 15s. to £46. three months. Tin steady. Straits closed at £94. 5s. to £94. 15s. cash, and £94. to £94. 10s. three months. Australian, £94. 15s. cash. English ingots, £97. to £97. 10s. Lead, steady; Spanish, £9. 17s. 6d. to £9. 18s. 9d. English £10. to £10. 5s. Silesian spelter: Ordinary, £17. 15s. Nickel, 1s. 9d. Antimony, £41. 10s. Quicksilver: First hands, £6. 7s. 6d., second hands, £6. 7s. Copper shares dull: Cape, 1½ to 1½. Copiapo, 2½ to 2½. Libiola, 3½ to 3½. Mason and Barry, 2½ to 2½; Rio Tinto, 15½ to 15½; Tharsis, 4½ to 4½; Namaqua, 1 to 1½; Panulcillo, ½ to ½.

WOLVERHAMPTON, WEDNESDAY.—Business fairly steady and inquiries coming to hand for next quarter's supplies. Tank plates, £7.; canal boat plates, £7. 10s. to £7. 15s.; boiler sorts, £8. to £9.; best thin sheets, £9. to £10. for singles and 10 guineas upwards for doubles; galvanized corrugated sheets, £10. 15s. upwards; for 24 gauge good doubles for shipment to South America, £11. to £11. 5s.; cinder pigs, 36s.; Lincolns, 45s. to 47s. 6d.; Northampton, 41s. to 42s.

GLASGOW, WEDNESDAY.—Market firmer with moderate business. Scotch done at 40s. 9d. cash, also at 40s. 11d. and 40s. 11½d. one month; closing with buyers at 40s. 8½d. cash, and 40s. 11d. one month; sellers ask ½d. more. Middlesbrough closes with buyers at 34s. 2d. cash; sellers ask 34s. 3½d. Hematite closes with buyers at 46s. cash; sellers ask 46s. 3d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is quiet but the market is firm. The offerings are small, and the only business reported is in Lagos, small sales of which have been made at £31. 10s. Olive continues firm though the business passing is small, and prices may still be quoted as £35. 10s. to £42. per tun. Linseed: Liverpool makes are slightly weaker, 22s. 6d. to 23s. in cwt. in export casks, the demand being quiet. Rape is steady, with refined Stettin at 29s., and English refined 27s. per cwt. Cottonseed: Liverpool refined after dwelling for a short time at the reduction which ruled at the latter end of last week, has again improved, and to-day is quietly steady at 26s. to 27s. per cwt. Castor oil is steady, though good seconds Calcutta is rather easier at 2½d. to 2¾d., first pressure French is steady at 2¾d. Tallow has a good enquiry, but in the absence of stocks there is nothing doing. Resin generally is firm, with a good market for common at 4s. per cwt. Spirits of turpentine have experienced an advance, and are now steady at 25s. 9d. per cwt. Petroleum is unaltered at last week's quotations.

COLOURS are very quiet, without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

The market this week is steady. Manganese: Arrivals are nil, and prices are unaltered. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12 10s., steady. Magnesite (raw lump) quiet; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Very large sales have been made at full prices, and the market is strong; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals are small, and prices firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, very scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland flat. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal is in strong demand, and prices are firm. Chrome ore, best qualities, are in good demand, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals: The demand is perhaps a shade better. Bleaching powder strong at £8. 5s. Soda crystals £2. 5s. to £2. 12s. 6d. per ton, according to destination. Sulphur £4. 2s. 6d. per ton. Caustic soda dull.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. 12s. 6d. per ton, 52%, £4. 16s. 3d. per ton, 56%, £5. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 10d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton net.

South Durham salt is still 9s. 1d. per ton, f.o.b. Tees.

Coals: Trade is quiet, though there is rather a better demand. Best Northumbrian steam, 8s. 6d. per ton f.o.b.; small coal, 3s. to 3s. 3d. per ton f.o.b.; gas coal, fairly firm at 6s. 3d. to 6s. 6d. per ton; coke dull, 14s. to 14s. 6d. per ton; bunker and household coals weaker. The threatened dispute with the Northumberland miners has been brought to a satisfactory conclusion, the men agreeing to accept a reduction of 5 per cent.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

As high as £11. 2s. 6d. has been paid for sulphate of ammonia, prompt delivery, and contrary to expectation, last week did not see the setting in of the expected reaction. The impression is very strong, however, that during this week there will be some evidence of the end of the rise for the time.

Bleaching powder is again strong, and at £8. 5s. it is very firm indeed, with the prospect, perhaps, of a further advance, should the demand exceed the resources in middle hands, makers being practically off the market till June. Bleach, however, is about the only exception

in an otherwise very inert market amongst the standard chemicals. Chlorate of potash also is dear and maintains its price.

In the paraffin department there is still a fair activity at present quoted, but the outgoing of burning oil from the works narrows itself and will become practically extinct almost direct the next winter season is approached again. The paraffin candle are at present agitating for an advance.

Scotch calico printing and cotton dyeing have been in a considerable semi-congestion, owing to the difficulty of getting material to upon, one result of the Lancashire cotton mill fighting. No work full time.

Chief prices current are:—Soda crystals, £2. 10s. nett soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; 28s.; borax, English refined, £30., and boracic acid, £37. nett; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. Scotch and English deliveries (for export 4½d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3¼d. nett f.o.b. Glasgow); chlorate of potash, 9½ 5% Liverpool; nitrate of soda, 10s. 1½d.; sulphate of ammonia to £11. 2s. 6d. f.o.b. Leith; sal ammoniac, first and second white and £33., less 2½% any port; sulphate of copper, £16., Liverpool; paraffin scale (hard), 1¼d., and soft 1¼d. paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (no 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at according to quality, for Scotch buyers (English sales about ½d. lower); ditto (lubricating), 865°, £3. 10s., to £3. 15s., 88 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's of raw sugar at Greenock were 10,462 bags.

New Companies.

Zeno and Co., Ltd.—CAPITAL £30,000. in £5. shares. This company has been formed with a view to trading as manufacturer of soap, perfumery, etc. The subscribers to the memorandum of association are:—L. J. Tritochley, Tufnell Park, mercantile clerk; Stevenson, W. Kensington, clerk; C. J. Bostock, 14, Worsley E. C., secretary; M. Fernander, Haverstock Hill, gentleman; Kent, Brixton, Chemist; J. D. Mamsen, Lewisham, gentleman; Harick, Dalston, gentleman.

E. Potter and Co., Ltd.—CAPITAL £60,000. in £10. shares. This company has been formed to acquire and take over as concern the business of E. P. Potter and W. H. Higgin, manufacturers at Little Lever, Manchester, and to carry on business of salt manufacturers, tar distillers, and manual chemists. The subscribers to the memorandum of association are:—E. P. Potter, Bolton, chemical manufacturer; N. H. Higgin, field, Bolton; Ellen A. Potter, Bolton, married woman; A. Bolton, married woman; C. Mellor, 7, Rennford-street, Bolton merchant; E. T. Crook, Netherfield, Bolton, cotton spin; Gladstone, Birmingham, wine merchant.

G. Dobson Ltd.—CAPITAL £10,000. in £10. shares. This company is to purchase the business hitherto carried on by George Dobson and T. Webber at Cardiff, and to manufacture of ammonia, muriatic acid and Boiler composition. The subscribers to the memorandum of association are:—J. Scott, Cardiff, drap; Seward, Cardiff, architect; J. L. Trehanne, Cardiff, surgeon; McCheyne Wilkinson, Cardiff, auctioneer; E. R. Payne, Plymouth, solicitor; A. G. King, Cardiff, accountant; G. H. Llewellyn, port, solicitor.

The Patent List.

This list is compiled from Official sources in the Main Technical Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Apparatus for Filtering Polluted Waters, etc. F. P. Candy. February 20.
Producing Formiate of Ammonia and Hydrocyanic Acid. Lambilly. 3,735. February 20.
Manufacture of Direct Cotton Dyeing Colouring Matters. C. 3,737. February 20.
Electrolytic Production of Copper. M. Perreux-Lloyd. 3,747. February 20.

ments in the Recovery of Hydrochloric Acid and Oxide of
ganese from Solutions of Manganese Chloride. M. N. D'Andria.
February 21.
Consuming Apparatus. T. H. Ackroyd and Willoughby & Co. 3,807.
February 21.
Apparatus for the Manufacture of Water Gas. J. R. Paisley.
February 21.
Filter. J. M. Morgan, E. B. Neave, A. H. Wily, and W. Smithdeal.
February 21.
Grease, Grit, and the like, from Exhaust Steam. W. Webster.
February 21.
tion of Sewage and Impure Waters. F. P. Candy. 3,882.
February 22.
Destructors. N. Duncan. 2,916. February 22.
ture of Salicylic Acid-Ester of Acetol. P. Fritsch. 3,961.
February 22.
ments in the Manufacture of Portland Cement. A. McAra.
February 23.
us and Furnaces for Concentrating Sulphuric Acid, etc. J.
bury. 3,996. February 23.
ture of Oxide of Iron. H. W. Hemingway. 4,001. February 23.
ng Cyanogen, Cyanides, etc., from Carbonaceous Matters con-
ng Ammonia or Nitrogen, or Compounds thereof. H. Aitken.
February 23.
on of Purple Ore Bricks, for Use in Blast Furnaces, etc. H.
4,072. February 24.
ments in Gas Producers. J. J. Meldrum and T. F. Meldrum. 4,076.
February 24.
ments in the Treatment of Galena and Apparatus therefor. H.
ill and G. Baron De Overbeck. 4,079. February 24.
ments in the Distillation of Petroleum. J. A. Wanklyn and W. J.
er. 4,097. February 24.
as for Distilling Crude Resins. F. W. Golby. 4,110. February 24.
ments in Gas Washers and Ammonia Stills. E. L. Pease. 4,112.
February 24.
ng Metallic Copper into Copper Oxide. J. C. Richardson. 4,114.
February 24.
on of Gold and Silver. H. Parkes. 4,133. February 24.
Iron Salts and Hydrates for the Production of Red and other
es of Iron suitable as Pigments. H. G. Powell. 4,176. Feb. 25.
ments relating to Coke Ovens. A. J. Boulton. 4,205. February 25.
ments in Generation of Gas from Water, Steam and the like.
Bedford. 4,225. February 25.

GERMAN PATENTS for week ending MARCH 4th, 1893.

*Specially abstracted by Dr. H. Zerener, civil engineer, the Patent
Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade
Journal. Dr. Zerener is willing to answer queries from subscribers
to the Journal gratis.*

- 8 A. 3,192. Preparation of Salicylide-Chloroform. Actien-gesellschaft für
Anilinfabrikation, Berlin S.O., an der Treptower Brücke.
12 M. 8,418. Preparation of Piperazine. Chemische Fabrik auf Actien (vorm.
E. Schering) Berlin, N. 170, Müllerstrasse.
12 P. 5,530. Columnar Stills. L. Pontallie, Malo Frankreich.
12 W. 8,781. Process and Apparatus for separating solid or liquid matters
dissolved in Alcohol, Ether and Chloroform, without evaporating the
solvent. C. Weitenkampf, Berlin, N.O., 15, Fliederstrasse.
8 S. 7,069. Machine for Dyeing Leather. Stanislaw Skueck and Franz Zelen.
Prag.
80 L. 7,666. Preparing Slabs of Asphalte. B. Löhr, Frankfurt-a-Maine, 55,
Hafenstrasse.
10 H. 3,365. Impregnating Peat or Coke with Saltpetre. Dr. H. Stiemer,
Stuttgart-Berg and M. Zielger, Nachterstedt Prov. Sachsen.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- H. P. COOPER and J. W. WOOD, under the style of the London Pure Drug Co.,
Hoxton, manufacturing chemists.
H. P. SCOTT and P. STRANGE, under the style of Scott, Strange and Co., South
Sields and Newcastle-on-Tyne, paint manufacturers.
W. G. HARRISON and A. R. GILL, under the style of Harrison and Gill, Birming-
ham, manufacturing chemists.
C. RUSSELL, J. RUSSELL and W. C. KEABLE, under the style of W. C. Keable and
Co., Perry Bar, Staffordshire, boiler composition manufacturers, as far as
regards W. C. Keable.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

POTTER, HERBERT, Sutton, chemist.

Adjudication.

WILSON, WILLIAM JOSEPH, Oxford, chemist and oil and colourman.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending February 25th.

Acid—
60 pkgs. A. & M. Zimmer-
mann
12 Beresford & Co.
60 J. Parlevliet
25 c. G. Haller & Co.
58 pkgs. Ohlenschlager
Bros.
54 Magee, Taylor, & Co.
Ala—
20 pkgs. H. Lorenz
5 J. Owen
Alum Chloride—
20 pkgs. H. Lorenz
Chloride—
22 pkgs. Petri Bros.
122 cks. W. Harrison & Co.
40 P. Jantzen
40 Coml. Lightge. Co.
24 W. Pope & Co.
16 Magee, Taylor, & Co.
58 Soundy & Sons
houc—
5 cs. C. S. Lovell
17 Brown & Elmslie
77 Prop. Bull Wf.
85 Jackson & Till
8 L. & I. D. Jt. Co.
17 S. Figgis & Co.
7 Lewis & Peat
Potash—
12 drs. F. W. Berk & Co.,
Ltd.
5 c. Petri Bros.

Chemicals (otherwise undescribed)

Germany, 12 R. Lyon & Co.
Langstaff & Co.
20 pkgs. T. H. Lee
9 Craven & Co.
14 A. & M. Zimmer-
mann
13 Pickford & Co.
7 L. & I. D. Jt. Co.
6 W. Burton & Sons
5 Philipps & Graves
Holland, 8 R. Morrison & Co.
Cream of Tartar—
Holland, 9 pkgs. Middleton & Co.
Italy, 8 Fellows, Morton, & Co.
Spain, 19 W. C. Bacon & Co.
France, 10 C. F. Gerhardt
5 Finlay & Co.
Italy, 10 B. Jacob & Sons
Holland, 13 B. & F. Wf. Co., Ltd.
France, 4 Smith, Abbott, & Co.
Dyestuffs—
Annatto
France, 2 pkgs. B. & F. Wf. Co.,
Ltd.
Argols
Italy, 1,694 pkgs. B. Jacob & Sons
88 Thames S. T. & L. Co.
France, 1 W. H. Cole
Cochineal
Canaries, 26 pkgs. Marshall & French
10 G. S. Bruce
24 Johnson, Hicks, & Co.
Extracts
Germany, 5 pkgs. T. H. Lee
France, 10 Beresford & Co.
215 Prop. Chamblin's Wf.
H. Herrmann, Ltd.
Germany, 10 T. H. Lee
Sydney, 8 Anderson, Anderson,
& Co.
U. States, 1 W. W. Young

Fustic

Jamaica, 9 t. S. Dobree & Sons
Gambier
E. Indies, 45 pkgs. L. & I. D. Jt. Co.
424 S. Figgis & Co.
Indigo
E. Indies, 42 chts. Ralli Bros.
682 L. & I. D. Jt. Co.
10 F. W. Heilgers & Co.
8 Graham & Co.
9 W. Brandts, Son, & Co.
10 Ernathausen & Co.
36 E. Bower & Co.
106 Elkan & Co.
50 Williams, Torrey, & Co.
228 Patry & Pasteur
16 F. Huth
17 Hatton, Hall, & Co.
14 J. Owen
10 Philipps & Graves
309 Forbes, Forbes, & Co.
811 Wallace Bros.
170 R. Von Glehn & Sons
30 Ross & Deering
4 F. Stahlschmidt & Co.
329 Stansbury & Co.
Myrabolams
E. Indies, 269 pkgs. A. Hagan
Lucas & Spencer's Wf.
1,317 L. & I. D. Jt. Co.
816 Baxter & Hoare
Orchella
Ceylon, 25 pkgs. Prop. Bull Wf.
Sumac
Italy, 750 pkgs. J. Graves
150 W. E. Shelcott
404 Galbraith, Pembroke,
& Co.
Turmeric
E. Indies, 206 pkgs. L. & I. D. Jt. Co.
Valonia
Greece, 80 t. J. Graves
A. Turkey, 10 Adam Bros.
56 A. & W. Nesbitt
52 Anning & Cobb

Dyestuffs (otherwise undescribed)

U. States, 1 pkg. W. W. Young
Farina—
Holland, 50 pkgs. J. Barber & Co.
50 J. Knill & Co.
France, 131 Prop. Scott's Wf.
Glucose—
U. States, 855 pkgs. 4,390 c. L. Sutro
& Co.
400 400 c. Humphrey
& Co.
Germany, 55 316 Prop. Chamblin's
Wf.
100 100 Hicks, Nash,
& Co.
San Francisco, 188 892 Pickford & Co.
U. States, 250 250 Trier, Meyer,
& Co.
50 280 Pillow, Jones,
& Co.
25 138 A. B. Curtis
& Co.
800 1,050 R. G. Hall & Co.
1,000 1,000 Barrett, Tagant,
& Co.
149 825 Prop. Scott's Wf.
50 300 Kearley & Tonge
France, 100 100 J. Barber & Co.
U. States, 25 300 J. Knill & Co.
30 165 T. M. Duché
& Sons
50 277 J. Keiller & Sons
75 413 Soundy & Sons
1,110 3,879 Prop. Chamblin's
Wf.
150 250 H. Johnson & Sons
250 250 Anderson, Weber,
& Co.
600 600 Fellows, Morton,
& Co.

Glycerine —		
Germany, 220	G. Haller & Co.	
Holland, 250	J. Owen	
" 15	Phillipps & Graves	
Lead Acetate —		
Holland, 20 pkgs.	F. Boehm	
" 20	J. Sauer	
Magnesia —		
Holland, 6 pkgs.	Beresford & Co.	
Manure —		
France, 85 t.	J. Burnett & Sons	
Germany, 1	Beresford & Co.	
" 100 Co-op. Lightge. Assn., Ltd.		
E. Indies, 50	A. Hunter & Co.	
Germany, 75	F. W. Berk & Co., Ltd.	
" 200	J. Gibbs & Co.	
Methyl Alcohol —		
U. States, 200 brls.	J. Kertel	
Ochre —		
Holland, 2 cks.	Phillipps & Graves	
France, 51	J. L. Lyon & Co.	
Painters' Colours —		
Germany, 35 pkgs.	L. & I. D. Jt. Co.	
France, 17	Flageolet & Co.	
E. Indies, 5	W. M. Smith & Sons	
Austria, 26	T. & W. Farmiloe	
" 4	M. D. Co.	
Holland, 4	Magee, Taylor, & Co.	
Belgium, 29	T. Palmer	
France, 4	Hernu, Peron, & Co.	
Germany, 16 cks.	Becker & Ulrich	
Holland, 3	G. Meyer & Co.	
Belgium, 2	Leach & Co.	
U. States, 250	M. Ashby, Ltd.	
Germany, 4	H. Lambert	
" 4	Phillipps & Graves	
" 10	T. H. Lee	
E. Indies, 9	L. & I. D. Jt. Co.	
France, 70	R. Warner & Co.	
Paraffin —		
U. States, 410 cs.	J. H. Usmar & Co.	
Paraffin Wax —		
U. States, 258 brls.	J. H. Usmar & Co.	
" 28	H. Hill & Sons	
Pearl Ash —		
France, 110 c	Petri Bros.	
Potassium Bicarbonate —		
Germany, 10 pkgs.	H. Lorenz	
Phosphate Rock —		
France, 282 t.	A. Hunter & Co.	
Belgium, 10	T. Farmer & Co.	
" 30	A. Gibbs & Co.	
" 200	Miller & Johnson	
" 245	West & Penrose	
Pitch —		
Holland, 30 cks.	J. Schmidt	
" 30 tubs.	W. Isted	
Potassium Bicarbonate —		
Germany, 100 c.	H. Lambert	
" 70 cks.	A. & M. Zimmermann	
Potassium Carbonate —		
Holland, 2 cks.	M. Benschner	
" 40 cs.	H. Johnson & Sons	
Germany, 420	Pillow, Jones, & Co.	
" 20 cks.		
Canada, 110	J. Barber & Co.	
Potassium Cyanide —		
Holland, 40 pkgs.	A. & M. Zimmermann	
Potassium Muriate —		
Germany, 406 pkgs.	Nitro-Phos. & Odams Manure Co.	
Potassium Sulphate —		
Germany, 203 pkgs.	Nitro-Phos. & Odams Manure Co.	
France, 12	Mead, Son, & Co.	
Germany, 150	F. W. Berk & Co., Ltd.	
Pyrites —		
Spain, 483 t.	F. C. Hills & Co.	
Quicksilver —		
Italy, 500 brls.	L. & I. D. Jt. Co.	
Spain, 4,000 flasks.	N. M. Rothschild & Sons	
Saltpetre —		
Germany, 20 cks.	Brown & Elmslie	
" 70	T. Merry & Son	
" 113	P. Hecker & Co.	
E. Indies, 623 bgs.	C. Wimple & Co.	
Sodium Hypsulphite —		
Holland, 240 cks.	Beresford & Co.	
Stearine —		
France, 80 bgs.	H. Hill & Sons	
Holland, 32	Robinson, Roberts, & Co.	
Belgium, 10	W. Meyerslein	
" 255	H. Hill & Sons	
U. States, 125	"	

Sulphate of Alumina —		
Holland, 135 pkgs.	R. W. Greeff & Co.	
Sulphur —		
Italy, 200 t.	B. Jacob & Sons	
" 500	Fuerst Bros	
" 32	Galbraith, Pembroke, & Co.	
" 17	G. Boor & Co.	
" 10	Hyslop & Symonds	
" 12	Parbury & Co.	
" 31	Pigou, Wilks, & Co.	
" 6	H. W. Ison & Co.	
" 10	J. Kitchen, Ltd.	
Tallow —		
Sydney, 33 cks.	Leach & Co.	
" 9	Coml. Banking Co.	
Queensland, 10	Leach & Co.	
" 30	D. J. Keymer & Co.	
" 253	Anning & Cobb	
N. Zealand, 4	Culverwell, Brooks, & Co.	
" 6		
France, 1	J. Burnett & Sons	
Queensland, 78	J. Greig	
" 21	Elkan & Co.	
" 47	A. B. Curtis & Co.	
Melbourne, 14	Goad, Riggs, & Co.	
Sydney, 152	J. Greig	
" 234	Dangar, Grant, & Co.	
" 29	Cuthbert & Hall	
Belgium, 14 tins.	G. Haller & Co.	
Sydney, 8	H. Birdseye & Co.	
Holland, 15	H. Hill & Sons	
Sydney, 101	Horne & Co.	
" 240	J. Owen	
" 211	Phillipps & Graves	
Tartaric Acid —		
Holland, 4 pkgs.	F. C. Devon & Co., Ltd.	
" 7	B. & F. Wf. Co., Ltd.	
" 16	Middleton & Co.	
Italy, 40	J. Knill & Co.	
Tin Oxide —		
Holland, 5 cks.	H. Lambert	
Ultramarine —		
Germany, 12 pkgs.	J. Kitchen, Ltd.	
Belgium, 2	Leach & Co.	
Holland, 2 cks.	Phillipps & Graves	
Germany, 8	88 cs H. Lambert	
Holland, 20	5 Hernu, Peron, & Co.	
Belgium, 2 brls.	W. Harrison & Co.	
White Lead —		
Holland, 51 cks.	Burrell & Co.	
France, 10	J. Watt & Sons	
" 2	F. Pryor	
Holland, 40	Phillipps & Graves	
" 130	T. & W. Farmiloe & Sons	
" 30	G. Farmiloe & Sons	
" 21	G. Clifford	
Germany, 5	Petri Bros.	
" 5	A. Steedman Bros	
Holland, 22	S. H. Willoughby	
" 20	J. Schmidt	
" 24	Spies Bros. & Co.	
" 5	Magee, Taylor, & Co.	
Germany, 4	W. Taylor, jun., & Co.	
" 32	G. Clifford	
" 25	C. Tennant, Sons, & Co.	
Austria, 5 c.	Magee, Taylor, & Co.	
Zinc Oxide —		
Holland, 31 cks.	F. Broome	
" 50	Burrell & Co.	
" 25	Colthurst & Harding	
" 23	F. Pryor	
" 30 brls.	M. Ashby, Ltd.	

LIVERPOOL.

Week ending February 23rd.

Aluminium —		
Rouen, 1 ck	R. & J. Francie & Co.	
Barytes —		
Antwerp, 13 cks.		
In transit, 85		
Borate of Lime —		
Valparaiso, 2,250 bgs.		
Caoutchouc —		
Havre, 1,162 pkgs.	Cunard S. S. Co.	
In transit, 41 cs.	"	
Chemicals (otherwise undescribed)		
Rotterdam, 30 cks.		
Rouen, 40		
Chrome Ore —		
Smyrna, 429 t.		

Cobalt Oxide —		
Hamburg, 4 cs.		
Colours —		
Rotterdam, 13 cks.	10 brls.	6 cs.
Dyestuffs —		
Cutch		
Rangoon, 2,347 bxs.		
Extracts		
New York, 30 brls.		
Ghent, 500 cks.	25 brls.	
Baltimore, 10 brls.	R. Schloesser & Sons	
Colon, 127 cs.	B. Novella & Co.	
Philadelphia, 95 bxs.		
Fustic		
Cartagena, 2,108 ps.	Widow Duranty & Son	
Galls		
Smyrna, 42 bgs.		
Orchella		
Colon, 25 bls.		
Valonia		
Smyrna, 2 bgs.	D. A. Galatti & Co.	
" 2	Essayan Shabum & Co.	
" 56 t.	P. T. Apostolo	
" 55		
" 7,230 bgs.		
Constantinople, 201 bgs.		
Glucose —		
Baltimore, 450 brls.		
Hamburg, 16 cks.		
New York, 250 brls.		
" 5	W. Woodward & Sons	
Mica —		
New York, 10 brls.	Robinson & Allen	
Ochre —		
Bordeaux, 34 cks.		
Rouen, 69	Co-op. Wholesale Society, Ltd.	
Paint —		
Boston, 2 cs.	G. Norris	
Paraffin Scale —		
Philadelphia, 200 brls.		
Phosphate —		
St. Valery, 112 t.	Phospho Guano Co.	
Ghent, 200		
Antwerp, 506 bgs.		
Phosphate Rock —		
Coosaw, 2,675 t.	United Alkali Co.	
Pyrites (Iron) —		
Syria, 212 bgs.	G. G. Blackwell	
Rosin —		
Baltimore, 503 brls.		
Bordeaux, 290 cks.		
Saltpetre —		
Hamburg, 60 bgs.		
Rotterdam, 19 cks.		
Kurachee, 156 bgs.		
Soap —		
New Orleans, 1,100 brls.		
Rotterdam, 5 cs.		
Naples, 20	P. Behrends	
Boston, 2		
Soda —		
Rotterdam, 10 cks.		
Sodium Nitrate —		
Rotterdam, 4 cks.		
Stearine —		
Antwerp, 23 bgs.		
In transit, 20 cs.		
Sulphur —		
Catania, 575 bgs.	13 cs.	
Sulphur Ore —		
Huelva, 1,093 t.	Matheson & Co.	
" 1,414	"	
Tallow —		
Havre, 72 bgs.		
Tartar —		
Bordeaux, 21 cks.		
Tartaric Acid —		
Rotterdam, 25 cks.		
Ultramarine —		
Rotterdam, 4 cks.	4 cs.	
White Lead —		
Rotterdam, 66 cks.		
Zinc Ashes —		
Antwerp, 6 cks.		
Zinc Oxide —		
New York, 100 brls.		
Antwerp, 30	J. T. Fletcher & Co.	
" 40		
Zinc White —		
Rotterdam, 100 cks.	O. & H. Marcus	

HULL.

Week ending February 23rd.

Acetate of Lime —		
New York, 474 bgs.	Wilson, Son	
Acetic Acid —		
Rotterdam, 10 crbys.	Hutchins	
" 10	Lilly	
" 9 balloons.	G. Lee	
Alkali —		
Flushing, 4 cks.	Wilson, Son	
Alum —		
Rotterdam, 38 cks.	Hutchins	
Barytes —		
Antwerp, 46 cks.	H. F. F.	
Bone Meal —		
Kurrachee, 1,500 bgs.		
Bombay, 7,040		
Caoutchouc —		
Hamburg, 10 cs.	C. M. Lohb	
Chemicals (otherwise undescribed)		
Bremen, 3 cs.	Veltman	
Colours —		
Ghent, 20 cks.	Wilson, Son	
Flushing, 85 cs.	15 cks.	
Rotterdam, 24 pkgs.	G. Lawrence	
" 8	Blundell Sy	
Hamburg, 1 ck.	Hanger, W.	
Rotterdam, 12	3 cs.	Ha
Hamburg, 1 brl.		
Rotterdam, 36 pkgs.	W. & C. F.	
" 4 cks.		
Bremen, 4	Tod	
Dextrine —		
Hamburg, 100 bgs.	Wilson, Son	
Dyestuffs —		
Alizarine		
Flushing, 42 cks.	36 cs.	Wila
Rotterdam, 24 pkgs.	5 cks.	W
" 13 cks.	2 cs.	Ha
Myrabolams		
Bombay, 4,650 bgs.		
Valonia		
Smyrna, 252 t.		
Farina —		
Harlingen, 110 bls.		
Glucose —		
Rotterdam, 50 bgs.		
Hamburg, 10 cks.		
Logwood —		
Hamburg, 50 pkgs.	Wilson, Son	
Manure —		
Ghent, 81 tns.	Wilson, Son	
Lysekil, D.	1,030 bgs.	Ca
Mica —		
Christiania, 5 cs.	Wilson, Son	
Ochre —		
Marseilles, 41 cks.	Wilson, Son	
Paint —		
Boston, 16 cs.		
Phosphate —		
Antwerp, A quantity.		
Fernandina, 1,438 tns.		
Pitch —		
Rotterdam, 100 tubs.	Wilson, Son	
Potash —		
Antwerp, 80 pkgs.	Wilson, Son	
Pyrites —		
Huelva, 913 t.		
Soap —		
Naples, 36 cs.	Wilson, Son	
Marseilles, 1	"	
Soda —		
Amsterdam, 1 ck.	W. & C. F.	

Stearine — Rotterdam, 13 bls. Wilson, Sons & Co., Ld.	Barytes Sulphate — Antwerp, 650 bgs. 68 cks.
Talc — Genoa, 20 bgs. Wilson, Sons & Co., Ld.	Colours — Antwerp, 5 cs. 3 cks.
Ultramarine — Rotterdam, 10 cks. Hutchinson & Son	Dyestuffs — Alizarine Amsterdam, 34 cks.
Yarnish — Rotterdam, 2 cks. Hutchinson & Son	Argols Bordeaux, 129 bgs.
Verdigris — Marseilles, 4 cks. Wilson, Sons & Co., Ld.	Extracts Antwerp, 5 cks.
Waste Salt — Hamburg, 805 bgs.	Sumac Fiume, 15 bgs.
White Lead — Antwerp, 93 cks. Bailey & Leatham	Farina — Amsterdam, 50 bgs.
" — Rotterdam, 26 Hanger, Watson & Harris	Glucose — New York, 549 brls.
" — " 23 A. Sanderson & Co.	Lead Acetate — Hamburg, 12 cks.
Zinc Sulphate — Bremen, 13 cks. Veltmann & Co.	Paraffin Scale — New York, 75 brls.
	Potash — Rotterdam, 49 cks. J. Rankine & Son
	Potassium Carbonate — Hamburg, 2 cks.
	Soap — In transit, 1 cs.
	Sulphur — Catania, 1,500 bgs.
	Tartar — Bordeaux, 2 cks.
	Tartaric Acid — Messina, 10 cks.
	Yarnish — New York, 8 brls.
	" — In transit, 39 cs.

GLASGOW.

Week ending March 2nd.

Acetate of Lime — New York, 802 bgs.
Alkali — Antwerp, 20 jars.
Barytes — Amsterdam, 271 cks.

Waste Salt — Hamburg, 234 cks. 500 bgs.
Zinc Ashes — Antwerp, 2 cks.
Zinc Oxide — Antwerp, 10 cks.
" — Rotterdam, 25 cks. J. Rankine & Son
Zinc White — Amsterdam, 50 cks.
" — Rotterdam, 60 cks. J. Rankine & Son

TYNE.

Week ending February 25th.

Alum Earth — Hamburg, 39 cks. Tyne S. S. Co.
Glucose — New York, 450 brls. Furness, Withy & Co.
Sulphur Ore — Pomeroy, 829 t.

GOOLE.

Week ending February 15th.

Caoutchouc — Boulogne, 1 c.
Chemicals (otherwise undescribed) Rotterdam, 13 cks.
Dyestuffs (otherwise undescribed) Boulogne, 2 cs.
" — " 67 cks.

Dyestuffs — Alizarine Rotterdam, 119 cks.
Fustic Hamburg, 715 pieces.
Indigo Rotterdam, 7 cts.
Madder Rotterdam, 2 cks.
Potash — Calais, 102 drms.
" — " 15 cks.
Saltpetre — Hamburg, 32 cks.
" — Rotterdam, 100 bgs.
Soda — Rotterdam, 3 pkgs.
Waste Salt — Rouen, 16 cks.
" — Hamburg, 181

GRIMSBY.

Week ending February 18th.

Caoutchouc — Hamburg, 6 cs.
Chemicals (otherwise undescribed) Hamburg, 214 pkgs.
Farina — Hamburg, 264 bgs.
Size — Antwerp, 7 pkgs.
" — Rotterdam, 15
Zinc Ashes — Antwerp, 41 pkgs.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.
LONDON.

Week ending March 1st.

Acids — Rangoon, 11 cs. £51	Chemicals (otherwise undescribed) Adelaide, 6 cks. 14 pkgs. £43
Alkali — Teneriffe, 10 c. £63	Calcutta , 2 £22
" — E. London, 1 t. 15 7	Auckland , 5 pt. 1 cs. 33
Alum Cake — Calcutta, 39 t. 14 c. £139	Citric Acid — Bombay, 2 c. 4 cs. £32
Aluminoferic — Rio de Janeiro, 5 t. £30	Rotterdam , 3 cks. 80
Ammonia (Liquid anhyd.) — Singapore, 1 cyldr. £21	Hamburg , 5 kgs. 3 t. 5 13
Ammonium Carbonate — Amsterdam, 1 t. 2 c. £30	Danzig , 5 41
" — Rosario, 10 14	Genoa , 1 5 49
Ammonium Sulphate — Bremen, 10 t. £105	Antwerp , 1 160
" — Ostend, 30 315	Coal Products — Alizarine
Hamburg , 50 18 c. 550	Boston , 40 cks. £545
Trinidad , 13 9 137	Aniline Dyes Shanghai, 100 cks. £456
Barbadoes , 25 250	Benzol Rotterdam, 59 cks. 23 drs. 30 pns. £1,108
Dunkirk , 150 1,500	Calais , 25 rns. 76
Koterilam , 50 13 525	Boulogne , 20 153
Ghent , 276 3 2,872	Creosote Oil Treport, 39 cks. £73
Boracic Acid — Adelaide, 6 c. £10	Naphthalene Marseilles, 53 cks. £50
Sydney , 1 t. 41	Le Treport , 55 70
Carbolic Acid — Philadelphia, 5 cs. £35	Boston , 132 182
Melbourne , 1 10	Pitch Dunkirk, 730 t. £1,022
Calcutta , 24 drs. 11	Tultcha , 15 cks. 11
Rotterdam , 48 cks. 230	Galatz , 35 20
Cape Town , 3 20	Ibrail , 60 20
Carbolic Oil — Rotterdam, 43 cks. £209	New York , 250 109
Caustic Potash — Sydney, 3 t. 9 c. £114	London (Ont.) , 200 60
Caustic Soda — Wellington, 4 c. £6	Terneuzen , 749 1,011
" — Sydney, 1 t. 1 28	Antwerp , 141 190

Copper Sulphate—

Lisbon, 25 t. £384
Batoum, 30 3 c. 495
Leghorn, 2 17 42
Paris, 15 10 250
Batoum, 5 85
Cream of Tartar — Adelaide, 2 t. 5 c. £193
Sydney , 5 ck. 10 kgs. 52
Disinfectants — Hamburg, 25 cks. £125
Brussels , 9 cs. 13
Sydney , 21 pkgs. 53
Karachi , 70 drs. 30
Colombo , 87 37
Jamaica , 13 pkgs. 25
Hamburg , 15 cks. 75
Antwerp , 20 100
Guano — Trinidad, 50 t. 5 c. £392
Pt. Chalmers , 30 300
Genoa , 50 500

Manure—

Bordeaux, 385 t. £1,330
Gothenburg, 107 4 c. 357
Rochefort, 110 10 385
St. Lucia, 17 10 28
Genoa, 101 18 407
Oratava, 1 3 280
Rouen, 50 380
Cherbourg, 120 300
New York, 40 18 552
Malaga, 59 30
Ghent, 14 19 30
Potash — Sydney, 5 c. £23
Potassium Bromide — Sydney, 3 c. £24
Potassium Chlorate — Melbourne, 10 c. £42
New York , 2 t. 10 162
Pelotas , 2 10
Genoa , 1 64
B. Ayres , 8 34
Salmoniac — Galatz, 1 t. 2 c. £36
Gothenburg , 1 1 35
Constantinople , 2 10 83
Salonica , 12 21

Saltpetre—

Wellington, 10 c. £11
Lisbon, 7 t. 7 149
Rio de Janeiro, 1 19 44
Bahia, 11 11 193
Piraeus, 1 5 26
Seville, 2 2 45
E. London, 6 7
Amsterdam, 1 22
Melbourne, 10 12
Sheep Dip — Melbourne, 10 cs. 20 drs. £18
Lytelton , 3 6 cks. 61
B. Ayres , 1,390 pkgs. 1,100
Calcutta , 5 cks. 24
Soda — Colombo, 14 c. £6
Soda Crystals — Cape Town, 4 t. 18 c. £18
Genoa , 8 21
Soda Salts — New York, 10 cks. £35
Sodium Acetate — Sydney, 3 t. £55
Melbourne , 5 80
Sodium Arseniate — Sydney, 1 t. 3 c. £12
Sodium Bicarbonate — Marseilles, 10 t. £72
Sodium Hypophosphite — Rotterdam, 5 cs. £40
Sodium Phosphate — Sydney, 5 cks. £28
Sulphur — Algoa Bay, 60 kgs. £33
B. Ayres , 1 t. 5 c. 30
Sulphuric Acid — Colombo, 10 cs. £10
Natal , 20 16
E. London , 50 34
Singapore , 10 pkgs. 10
Superphosphate — Hamburg, 197 t. £700
Pt. Chalmers , 30 120

Tartaric Acid—			
Melbourne,	1 t.	£98	
Sydney,	5 c.	28	
Karachi,	1 17	65	
Auckland,	5	26	
Adelaide,	11	51	
Zinc Sulphate—			
Cologne,	8 c.	£12	

LIVERPOOL.

Week ending March 1st.

Alkali—			
Barcelona,	17 cks.		
Fiume,	17		
M. Video,	4 t.	1 q.	£44

Alum—			
Alexandria,	2 t. 10 c.	£15	
Patras,	1 9	7	
Operto,	4 5	20	
Bombay,	14 9	75	
Sydney,	1	6	
Candia,	1	5	
Adelaide,	1	5	
B. Ayres,	8	54	
Galatz,	15	52	

Ammonia—			
Rosario,	17 c. 2 q.	£23	

Ammonium Carbonate—			
Valparaiso,	3 t.	£114	
Operto,	1	30	
Portland, M.,	2	56	
Antwerp,	6 c. 2 q.	9	
Genoa,	10	14	
Rotterdam,	1 5	37	

Ammonium Chloride—			
Madras,	1 t. 2 c. 2 q.	£35	
Ghent,	2 4	5	
Genoa,	2 5	42	
Philadelphia,	15 2 3	344	
Alexandria,	2	66	
Hamburg,	11	18	
Galatz,	1 2	38	
Naples,	10	17	
Ancona,	10	16	
Montreal,	1 3 1	20	

Ammonium Sulphate—			
Bordeaux,	25 t. 7 c.	£273	
Philadelphia,	51 3 1 q.	528	
Valencia,	61 11 2	574	
Odessa,	206 15 2	2,135	
Las Palmas,	18 5	198	
Ghent,	25	260	
Genoa,	90	900	
New York,	50 10	560	
Demerara,	86 16 8	932	

Aniline Colours—			
New York,	27 cks.		
Bombay,	10 cs.		

Aniline Oil—			
New York,	20 dms.		
Genoa,	13		

Aniline Salt—			
New York,	72 cs. 18 dms.		
Rosario,	3 c. 1 q.	£5	

Barium Chlorate—			
Antwerp,	4 c.	£19	

Bismarckite of Soda—			
Rotterdam,	6 cks.		

Bleaching Powder—			
Baltimore,	264 cks.		
Boston,	1,118		
Ghent,	15		
New York,	569	175 brls.	
Operto,	200		
San Francisco,		80	
Genoa,	33		
Hamburg,	42		
Havana,		10 cs.	
Naples,	51		
Vigo,	6		
Boston,	50 t. 17 c.	£432	

Boric Acid—			
Yokohama,	1 t.	£38	
Portland, M.,	17 c.	34	
Antwerp,	1 3 11 q.	44	
Rotterdam,	12	23	

Borate of Lime—			
Hamburg,	35 t. 1 c. 2 q.	£439	

Borax—			
Valencia,	11 c.	£16	
Sydney,	2 t.	61	
Hamburg,	9 19 1 q.	299	
Adelaide,	3 1 1	91	
Ghent,	1 1	31	
Rotterdam,	14 9 2	431	
Antwerp,	17 1 4	522	
Santander,	5 3	8	
Seville,	1	3	

Calcium Chloride—			
New York,	10 c. 3 q.	£21	

Carbolic Acid—			
New York,	4 t. 14 c. 1 q.	£90	
Rotterdam,	15	342	
Tampico,	1 3	7	
New Orleans,	15 14 3	752	

Caustic Potash—			
Boston,	3 t. 11 c.	£90	
New York,	12 6	260	

Caustic Soda—			
Alexandretta,	150 dms.		
Baltimore,		270 brls.	

Barcelona,	300		
Bombay,	25	5 kgs.	
Boston,	100		
B. Ayres,	50		
Carill,	10		
Demerara,		20	
Genoa,	70		
Geraldton, 4 cs.			
Ibrail,	40		
M. Video,	50		
Vigo,	15		
Trieste,	45		
Naples,	35		
New York,	141	100	
Operto,	58		
Quebec,	125		
Rio de Janeiro,	20		
Salt Pond,	16		
San Francisco,	100		
Santander,	30	6	
Savanna,		20	
Tocopilla,	4		
Yokohama,	100		
Seville,	60		
Algiers,	50		
Algoa Bay,	7		
Valencia,	10		
Amsterdam,	128		
Bahia,	20		
Bilbao,	61		
Ceara,	20		
Tampico,		50	
Galatz,	90		
Halifax,	21		
Hamburg,	2	1 67	
Lisbon,		24	
Malaga,	117	10	
Malta,	8		
Marseilles,	18		
Odessa,	300		
Penang,	80		
Rotterdam,	79	6 cks.	
Rouen,	1,495		
Samarang,	25		
Smyrna,		7	
Sourabaya,	49		
Sydney,	21		

Chemicals (otherwise undescribed)

Trebizonde,	4 c.	£6	
Galatz,	10	16	
Genoa, 2 cks. 1 brl.		5	
Kurrachee,	18	28	
Samsoun,	8	13	
Larnaca,	2 t. 1 2 q.	64	
Boston,	5 1	454	
Bombay,	8 5	280	

Chrome Alum—			
Lisbon,	8 c. 2 q.	£5	

Cobalt Oxide—			
Genoa,	1 q.	£11	

Copper Sulphate—			
Naples,	7 t. 6 c. 3 q.	£108	
Genoa,	9 14	155	
Venice,	26 1 1	397	
Calcutta,	5	74	
Rio de Janeiro,	1	20	
Rouen,	75 16 1	881	
Santos,	5	4	
Operto,	5 1 1	74	

Disinfectants—			
Bombay,	16 c.	£9	

Ferrous Sulphate—			
Bourgas,	3 t. 4 c.	£6	
Varna,	5	11	
Malta,	5	9	
Patras,	2 8	4	
Constantinople,	4 1 1	7	

Guanine—			
Las Palmas,	80 t.	£219	

Gypsum—			
New York,	52 t. 15 c.	£194	

Lead Acetate—			
Rosario,	6 c.	£8	
Lisbon,	8 1 q.	10	
Calcutta,	1 3	7	
Operto,	6	9	

Logwood Extract—			
New York,	20 cks.		

Magnesia—			
Philadelphia,	42 cs.		

Magnesium Chloride—			
Bombay,	13 t.	£36	

Magnesium Sulphate—			
Bombay,	10 t.	£64	

Manure—			
Malaga,	120 t.	£900	

Paraffin Wax—			
Boston,	50 cs.		
Marseilles,	50		
Para,	49	8 dms.	
Penang,			
Rio de Janeiro,	2		
Rouen,	10		
Smyrna,	11 bgs.		

Painters' Colours—			
Hong Kong,	20 brls	200 kgs. 13 tcs.	
Iquitos,			
Jeremie,	2	2 cks.	
Maranham,	1 cs.		
Nassau, 147 drms.		7 120 kgs.	
New York,	350		
Para,	8		
Pernambuco,		25	
Ponce,	2		
San Juan,		1	
Savanna,	1	2	
Toronto,			
Valparaiso,	40	8	

Phosphate—			
Hamburg,	51 t. 2 c. 1 q.	£217	

Phosphorus—			
Operto,	2 cs.		
San Juan,	5		
Shanghai,	29		
Hiogo,	9		
M. Video,	12		

Pitch—			
St. Malo,	278½ t.		

Potassium Bichromate—			
Marseilles,	5 t. 10 c.	£230	
Constantinople,	14	32	

Potassium Carbonate—			
New York,	5 t. 17 c.	£116	

Potassium Chlorate—			
Shanghai,	1 t.	£78	
Hamburg,	3	208	
Boston,	3 18 c.	262	
M. Video,	5	15	
Corunna,	12	52	
Vera Cruz,	1	81	
Sydney,	9 10	443	
Philadelphia,	2 10	174	
New York,	15	856	
Genoa,	1 2	70	
Yokohama,	12 10	795	
Valparaiso,	1	57	
Hiogo,	12 10	855	
Tampico,	10	32	
M. Video,	5	15	
Rotterdam,	1 5	85	

Potassium Stannate—			
Bombay,	1 t. 4 c. 1 q.	£104	

Salt—			
Adelaide,	50 t.		
Boston,	5		
Benin,	10		
Chicago,	130		
Demerara,	64 3 c.		
Faroe Island,	150		
Levaka Fiji,	10		
Melbourne,	300		
Newcastle,	675		
New York,	130		
Rio de Janeiro,	2½		
San Francisco,	394 16		
Winnebah,	20		
Sierra Leone,	618		
Sydney,	310		
Trinidad,	36		
Valparaiso,	300 3		
Accra,	11 5		
Appam,	20		
Bakana,	43 9		
Barbadoes,	50		
B. Ayres,	10		
Cape Coast,	12½		
Capetown,	44 12		
Degama,	75		
Ghent,	70		
Opobo,	231½		
Port Natal,	5		
Salt Pond,	36 5		
San Juan,	1		

Salt Cake—			
Philadelphia,	100 t. 16 c.	£217	
Baltimore,	282 9	657	

Saltpetre—			
Carril,	1 t. 1 c.		
Maranham,	2 6		
B. Ayres,	10		
Para,	1		
Ceara,	10		
Cephalonia,	16 14		
Mexico,	2 13 2		
Pernambuco,	12 16 4		

Sheep Dip—			
Punta Arenas, 5 cks. 3 t. 18 c. 14			
Algoa Bay,		6 2	
B. Ayres,		51	

Soap—			
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Sodium Saborate—

Halifax, 7 brls.
Portland, M., 35
Rotterdam, 5 cks.
Yokohama, 50 cs.

Sodium Bicarbonate—

Alexandria, 10 kgs. 40 brls.
Genoa, 120
Oporto, 10
Port Natal, 10
Odessa, 310
Venice, 51
Amsterdam, 10 cks.
Antwerp, 8 16 brls.
Bari, 75
Barcelona, 95
Bombay, 600
Calcutta, 1,100
Ghent, 40
Hamburg, 20
Havana, 36
Marseilles, 27
Melbourne, 50
Pasages, 75
Portland, 75
Rotterdam, 20
Santander, 40
Singapore, 4
Sydney, 67
Yokohama, 1,300

Sodium Carbonate—

Boston, 107 brls.
New York, 140
Barcelona, 14 cks.
Sourabaya, 40

Sodium Chlorate—

Antwerp, 50 kgs.
Boston, 50
New York, 100
Rotterdam, 100
Hamburg, 20 brls.

Sodium Metallic—

Rotterdam, 46 cs.

Sodium Nitrate—

Leghorn, 79 bgs.

Sodium Silicate—

Barcelona, 150 brls.
Bilbao, 20
Bombay, 12 cks. 10 kgs.
Boston, 50
Carthagena, 6
Malaga, 17
Oporto, 18
Valencia, 15

Sulphur—

Calcutta, 5 t. 19 c. 1 q. £30
Natal, 2 18
Para, 1 10 12
Iquique, 30 1 3 179
B. Ayres, 4 10 28
Boston, 626 14 2,413
Philadelphia, 80 2 309
New York, 200 2 772
Cura, 15 7

Sulphuric Acid—

Syracuse, 14 c. 1 q. £11
Calcutta, 1 t. 17
Genoa, 52 1 768
Ancona, 12 1 2 187
Fiume, 4 18 77
Piraeus, 9 7
Lisbon, 36 15 7 569
Antwerp, 20 3 5 313
Leghorn, 10 3 150
Venice, 11 7 2 176
Valparaiso, 7 10 116
Marseilles, 460 15 2 7,138
Trieste, 10 18 148
Christiania, 9 3 8
Allep, 10

Superphosphate—

Lisbon, 50 t. £125
Honolulu, 91 230

Superphosphate of Lime—

Almeria, 1 t. 19 c. 3 q. £7

Tannic Acid—

Magog, 9 c. £65

Tar—

Port Natal, 120 drms.
Guayaquil, 30

Tar Oil—

Algoa Bay, 50 cks.
B. Ayres, 250 brls.

Tartaric Acid—

Rosario, 50 t. £255

Yarnish—

Calcutta, 5 cs.
Havana, 1
Mafra, 5
Rio de Janeiro, 2

White Lead—

Calcutta, 8 cks.

HULL.

Week ending February 25th.

Ammonium Sulphate—

Dunkirk, 200 bgs.
Göthenburg, 50
Ghent, 1,479

Bleaching Powder—

Boston, 92 cks.
Harlinger, 32

Caustic Soda—

Drontheim, 6 drms. 5 cks.
Fiume, 17

Chemicals (otherwise undescribed)

Antwerp, 7 cks.
Amsterdam, 20 pkgs.
Christiania, 6 20 kgs.
Drontheim, 8
Göthenburg, 45 40 20 8 cs.
Ghent, 2
Hamburg, 68 102 300 96
Harlingen, 20
New York, 10
Rouen, 15
Rotterdam, 58 20
Trieste, 6

Cottonseed Oil—

Flushing, 134 c.
Göthenburg, 200
Hamburg, 500
Rotterdam, 3,896

Creosote—

Fiume, 360 cks.

Dyestuffs (otherwise undescribed)

Boston, 4 cks.
Flushing, 22 drms.
Hamburg, 9 3 cs.
Rotterdam, 2

Farina—

Rotterdam, 5 cks.

Linseed Oil—

Bremen, 206 c.
Christiania, 135
Drontheim, 11
Hamburg, 302
Rotterdam, 205

Painters' Colours—

Antwerp, 6 cs. 51 cks.
Amsterdam, 2 3 pkgs.
Boston, 60 52
Bergen, 1
Christiansund, 12 drms
Christiania, 1 26
Drontheim, 72 kgs.
Dunkirk, 1
Flushing, 11
Göthenburg, 1
Ghent, 6
Hamburg, 1 43 7
Harlingen, 2
New York, 137
Rouen, 17
Rotterdam, 7 6 1
San Francisco, 10

Pitch—

Antwerp, 400 tns.
Dunkirk, 200
New York, 500 cks.

Soap—

Göthenburg, 19 cs.
Hamburg, 1

Sulphite Pulp—

Boston, 45 tns.

Tar—

Amsterdam, 72 cks.
Rotterdam, 24

Yarnish—

Antwerp, 3 cks.
Göthenburg, 2 cs.
Ghent, 5
Hamburg, 15
Harlingen, 1
Rotterdam, 6

GLASGOW.

Week ending March 2nd.

Acid—

Rangoon, £21

Ammonium Sulphate—

Jamaica, 160 c. £85
New York, 50 t. 520
Genoa, 90 11½ c. 917

Benzol—

Rotterdam, 10 puns. £73

Bichrome—

Drontheim, 1 ck. £15

Bleaching Powder—

Melbourne, 247 c. £95
Calcutta, 25 200

Boracic Acid—

Rouen, 9½ c. £21
Drontheim, 1 ck. 10

Cottonseed Oil—

Rotterdam, 30 brls. £135

Creosote Oil—

New York, £45
Boston, 56 t. 1 c. 123

Dyestuffs—

Fustic Extract
Melbourne, 17 c. £25

Linseed Oil—

Rio de Janeiro, 122½ c. £132
Chili, 41½ £49. 115.

Logwood—

Melbourne, 19½ c. £43

Manure—

Jamaica, 153 c. £35
Mauritius, 65 t. 5½ 597

Muriatic and Nitric Acid—

Hong Kong, £60

Oxalate—

Boston, 7 t. 2 c. £160
New York, 6 t. 19 c. £94

Painters' Colours—

Rangoon, 23 t. 15½ c. £283
Mauritius, 7½ 100

Paint—

Melbourne, 48½ c. £36
Monte Video, 31 34
New York, 6 t. 19 c. £94

Paraffin Wax—

Rio de Janeiro, 12 t. 3½ c. £250
Melbourne, 5 2½ 128
Rouen, 20½ 14 lbs. 30
Genoa, 58 4½ 1,470

Pitch—

Genoa, 219 19 £150

Potassium Bichromate—

Melbourne, 10½ c. £29
Rouen, 18 t. 13 726
Rotterdam, 28 cks. 435
Genoa, 11 t. 8 c. 496

Sodium Bichromate—

Rouen, 10½ c. £552
Genoa, 54 t. 17½ 1,887

Stearine—

Rio de Janeiro, 10 c. £23

Sulphuric Acid—

Rangoon, £520

Tallow—

Rotterdam, 147 c. £271

Tar—

New York, 45 t. 15 £80
Boston, 25 53

TYNE.

Week ending February 25th.

Alkali—

Amsterdam, 98 t.
Hamburg, 1

Ammonia—

Barcelona, 22 t.

Ammonium Carbonate—

Odessa, 10 t.

Ammonium Chloride—

Odessa, 6 t.

Ammonium Sulphate—

Dunkirk, 50 t.

Antimony—

Hamburg, 5 t.

Arsenic—

Barcelona, 2 t.

Asbestos—

Elsinore, 1 c.

Barium Binoxide—

Dunkirk, 3 t.

Barytes—

Odessa, 5 t.

Bleaching Powder—

Christiania, 30 t.
Antwerp, 54
Amsterdam, 42
Esbjerg, 1
Bilbao, 16
Drontheim, 10
Göthenburg, 24
Hamburg, 1
Rotterdam, 18

Caustic Soda—

Arendal, 3 q.
Christiania, 7 t.
Antwerp, 4
Amsterdam, 15
Esbjerg, 1
Seville, 20
Göthenburg, 64
Odessa, 142
Hamburg, 1

Coprolites (ground)

Drontheim, 4 t.

Litharge—

Hamburg, 3 t.
Rotterdam, 5

Magnesia—

Barcelona, 6 t.
Antwerp, 2 c.
Hamburg, 68

Naphtha—

Barcelona, 4 c.

Ochre (Red)—

Drontheim, 3 t.

Phosphorus—

Barcelona, 1 t.

Soda—

Christiania, 10 t.
Arendal, 1
Bergen, 16
Antwerp, 14
Randers, 10
Göthenburg, 11
Rotterdam, 63
Ancona, 10

Soda Ash—

Odessa, 63 t.
Göthenburg, 85
Hamburg, 14

Sodium Hyposulphite—

Barcelona, 1 t.
Christiania, 14

Sodium Silicate—

Bilbao, 11 t.

Sulphur—

Antwerp, 5 t.
Göthenburg, 20
Rotterdam, 60

Tallow—

Hamburg, 1 t.

White Lead—

Odessa, 5 t.
Göthenburg, 4

GOOLE.

Week ending February 15th.

Alkali—

Dunkirk, 30 drms.

Alum—

Hamburg, 2 cks.

Benzol—

Boulogne, 48 cks.

Bleaching Powder—

Antwerp, 30 cks.

Chemicals (otherwise undescribed)

Antwerp, 1 ck.
Boulogne, 1 cs.
Ghent, 10 cks.
Rotterdam, 61

Coal Products (otherwise undes.)

Rotterdam, 164 cks.

Dyestuffs (otherwise undescribed)

Boulogne, 1 cs.
Ghent, 3 cks.
Hamburg, 4 drms.
Rotterdam, 2 tins.

Manure—

Dunkirk, 199 bgs.
Boulogne, 48
Bruges, 1,076
Ghent, 100

Pitch—

Antwerp, 298 t.
Dunkirk, 151

GRIMSBY.

Week ending February 18th.

Chemicals (otherwise undescribed.)

Antwerp, 60 bts.
Dieppe, 114
" 8 pkgs.
" 14 cks.
Hamburg, 4 cs.
" 40 cks.

Dyestuffs (otherwise undescribed)

Dieppe, 4 pkgs.

Naphtha—

Dieppe, 161 cks.

PRICES CURRENT.

WEDNESDAY, MARCH 24, 1892.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 11/-
" Glacial	"	50/-	
Arsenic S.G., 2000	"	0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¾
Nitrous	"	0	0 1¾
Oxalic	nett	0	0 3¼
Phosphoric, 1750°	"	0	1 2½
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
" 150°	"	1	5 0
(free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	"	0	11 ¾
Arsenic, white powdered	nett	per ton	13 10 0
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferrous	"	2	10 0
Aluminium	per lb.	0	4 0
Ammonia, Anhydrous	"	0	1 2
" 880=28°	per lb.	0	0 2½
" =24°	"	0	0 1¾
Carbonate	nett	0	0 3¼
Muriate	per ton	20	0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
Nitrate	per ton	39	0 0
Phosphate	per lb.	0	0 10½
Sulphate (grey) London	per ton	11	15 0
" (grey) Hull	"	11	15 0
Aniline Oil (pure)	per lb.	0	0 7½
Aniline Salt	"	0	0 7
Antimony	per ton	45	10 0
(tartar emetic)	per lb.	0	1 0
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	8	0 0
Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	..	..	nett	per lb.	0	0	8
Magenta	..	..	..	..	0	3	0
Anthracene, 30 % A, f.o.b. London	..	..	per unit	per cwt.	0	1	2
Benzol, 90 % nominal	..	..	..	per gallon	0	1	8
50/90	..	..	..	..	0	1	5
Carbolic Acid (crystallised 40°)	..	..	..	per lb.	0	0	7½
(crude 60°)	..	..	..	per gallon	0	2	6
Creosote (ordinary)	..	..	..	..	0	0	1¼
(filtered for Lucigen light)	..	..	..	..	0	0	1¾
Crude Naphtha 30 % @ 120° C.	..	..	..	..	0	0	10
Grease Oils, 22° Tw.	..	..	..	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	..	..	..	..	1	6	0
Solvent Naphtha, 90 % at 160°	..	..	..	per gallon	0	1	1
Coke-oven Oils	..	..	..	..	0	0	1¼
Copper	..	..	..	per ton	45	6	3
Sulphate	..	..	..	..	16	5	0
Oxide (copper scales)	..	..	..	..	42	0	0
Glycerine (crude)	..	..	..	..	13	0	0
(distilled S.G. 1250°)	..	..	..	..	43	0	0
Iodine	..	..	..	nett, per oz.	0	0	9
Iron Sulphate (copperas)	..	..	..	per ton	1	12	6
Sulphide (antimony slag)	..	..	..	..	2	0	0
Lead (sheet) for cash	..	..	..	..	10	10	0
Litharge Flake (ex ship)	..	..	..	..	13	10	0
Acetate (white ")	..	..	..	..	25	15	0
" brown ")	..	..	..	..	17	10	0
Carbonat: (white lead) pure	..	..	..	..	20	0	0
Nitrate	..	..	..	..	20	0	0

Lime, Acetate (brown)	per ton	6	0 0
" (grey)	"	10	15 0
Magnesium (ribbon and wire)	per oz.	0	2 1
Chloride (ex ship)	per ton	2	7 6
Carbonate	per cwt.	1	17 6
Hydrate	per ton	17	0 0
Sulphate (Epsom Salts)	per ton	2	19 0
Manganese, Sulphate	"	17	15 0
Borate	per cwt.	2	12 6
Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 0
Naphtha (Wood), Solvent	"	0	3 8
" Miscible, 60° O.P.	"	0	4 6
Oils:—			
Cotton-seed	per ton	26	15 0
Linseed	"	22	15 0
Lubricating, Scotch, 890°—895°	"	7	3 8
Petroleum, Russian	per gallon	0	0 4½
" American	"	0	0 5½
Potassium (metal)	per oz.	0	3 7
Bichromate	nett	per lb.	0 0 4½
Carbonate, 90% (ex ship)	per ton	17	15 0
Chlorate	per lb.	0	0 9½
Cyanide, 98%	"	0	2 0
Hydrate (Caustic Potash) 80/85 %	per ton	22	5 0
" (Caustic Potash) 75/80 %	"	21	5 0
" (Caustic Potash) 70/75 %	"	20	15 0
Nitrate (refined)	per cwt.	1	2 4
Permanganate	per cwt.	3	5 0
Prussiate Yellow	per lb.	0	0 9½
Sulphate, 90 % (ex ship)	per ton	9	15 0
Muriate, 80 % (do.)	"	8	0 0
Silver (metal)	per oz.	0	3 2½
Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 4
Carb. (refined Soda-ash) 48 %	nett	per ton	6 2 6
" (Caustic Soda-ash) 48 %	"	5	0 0
" (Carb. Soda-ash) 48%	"	5	2 6
" (Carb. Soda-ash) 58 %	"	5	7 6
" (Soda Crystals)	"	3	0 0
Acetate (ex-ship)	"	17	15 0
Arseniate, 45 %	"	11	15 0
Chlorate	per lb.	0	0 10
Borate (Borax)	net, per ton	29	0 0
Bichromate	per lb.	0	0 3½
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	11	0 0	
" (74 % Caustic Soda)	"	10	10 0
" (70 % Caustic Soda)	"	9	10 0
" (60 % Caustic Soda)	"	8	10 0
" (60 % Caustic Soda, cream) (f.o.b.)	"	8	5 0
Bicarbonate	"	6	10 0
Hyposulphite	"	7	10 0
Manganate, 30%	"	16	0 0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	10 0
Nitrite, 98 %	per ton	30	0 0
Phosphate	"	15	10 0
Prussiate	per lb.	0	0 1¼
Silicate (glass)	per ton	5	7 6
" (liquid, 100° Tw.)	"	4	3 0
Stannate, 40 %	per cwt.	3	5 0
Sulphate (Salt-cake)	per ton.	1	7 6
" (Glauber's Salts)	"	1	15 0
Sulphide	"	7	15 0
Sulphite	"	6	12 6
Strontium Hydrate, 100%	"	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 1¼
Barium, 95 %	"	0	0 5
Potassium	"	0	0 7½
Sulphur (Flowers)	per ton.	8	0 0
" (Roll Brimstone)	"	6	10 0
Brimstone: Best Quality	"	4	5 0
Superphosphate of Lime (26 %)	"	2	7 6
Tallow	"	26	5 0
Tin (English Ingots)	"	97	0 0
Crystals	per lb.	0	0 6½
Zinc (Spelter)	per ton	17	15 0
Chloride (solution, 96° Tw.)	"	5	15 0

THE
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304.

SATURDAY, MARCH 18, 1893.

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Notices.

Communications for the *Chemical Trade Journal* should be in the form of letters, and Cheques and Post Office Orders made payable to—

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Our Registered Telegraphic Address is—

"Expert, Manchester."

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Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday** evening.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, give one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

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Each additional 10 words 6d. "

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE BRINE PUMPING BILL.

THIS Bill, which is one of the private Bills suspended from 1892, has just passed through the committee stage. The object of the measure is set forth pretty fully by its title, which is the Brine Pumping (Compensation for Subsidence) Provisional Order Bill.

It will possibly be remembered by some that in February last year an inquiry was held by the Local Government Board at Northwich into the applications of a number of land owners for the formation of compensation areas. The evidence then put forward showed that there was much difference of opinion among geological experts as to the nature of the Cheshire salt field. In May the Local Government Board notified that they had decided to form one compensation area, including Northwich and Winsford, and that a draft provisional order had been drawn up, which was really a compromise as far as the settlement of the points of contention was concerned. When the Bill came on for its second reading in the House of Commons on May 31st, it provoked a good deal of discussion, but it was finally read. The order, which is now before a Parliamentary Committee, presided over by Sir R. Temple, is supported by the Northwich Local Board and Messrs. Brunner, Mond and Co., and opposed by the Winsford Local Board and the Salt Union. The evidence placed before the Committee is much the same as that laid before Colonel W. M. Ducat, R.E., who held the inquiry on behalf of the Local Government Board, and is as conflicting as ever. It is stated by the witnesses for the supporters of the Order that there is only one salt bed in Cheshire, and this was the opinion expressed by Colonel Ducat before the Committee on Tuesday last, his conclusion being drawn from the evidence which was submitted at the inquiry over which he presided. In regard to the barrier between Winsford and Northwich, he held that the brine ran round the barrier, and that there was a continuous run between the two places. The opponents to the Order, however, contend that there are no brine runs between the two districts, that the beds are separate, and that the brine at Winsford is different, as shown by analysis, to that pumped at Northwich. It was further argued that the subsidences at Northwich were much more numerous than at Winsford, and would increase greatly as the dry mines under the town became inundated; consequently it was unfair for the two districts to be placed in the same area, as the one would be compelled to assist in paying for the damage done solely by the other. This is the point upon which Mr. Balfour Brown, Q.C., laid particular stress when addressing the Committee. He also drew attention to the fact that prior to the inquiry of February, 1892, it had never been suggested that the districts were connected by brine-runs. As far as the evidence goes, matters seem no further advanced than they were twelve months since, so that it was as hard as ever for the Com-

PRICES CURRENT.

WEDNESDAY, MARCH 8th, 1884

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—		£ s. d.	
Acetic, 25 % and 40 %	per cwt	7/- & 11/-	
Glacial	"	50/-	
Arsenic S.G., 2000	"	0 14 6	
Fluoric	per lb.	0 0 3 1/4	
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10	
(Cylinder), 30° Tw.	"	0 3 0	
Nitric 80° Tw.	per lb.	0 0 1 3/4	
Nitrous	"	0 0 1 3/4	
Oxalic	nett	0 0 3 1/4	
Phosphoric, 1750°	"	0 1 2 1/2	
Picric	"	0 1 0	
Sulphuric (fuming 50 %)	per ton	15 10 0	
(monohydrate)	"	5 10 0	
(Pyrites, 168°)	"	3 0 0	
" 150°	"	1 5 0	
(free from arsenic, 145°)	"	1 6 0	
Sulphurous (solution) S.G. 1025	"	3 0 0	
Tannic (pure)	per lb.	0 1 2	
Tartaric	"	0 0 11 1/2	
Arsenic, white powdered	nett	per ton 13 10 0	
Alum (loose lump)	"	5 2 6	
Alumina Sulphate (pure)	"	5 0 0	
Aluminoferic	"	2 10 0	
Aluminium	per lb.	0 4 0	
Ammonia, Anhydrous	"	0 1 2	
" 880=28°	per lb.	0 0 2 1/2	
" =24°	"	0 0 1 3/4	
" Carbonate	nett	0 0 3 1/4	
" Muriate	per ton	20 0 0	
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-	
" Nitrate	per ton	39 0 0	
" Phosphate	per lb.	0 0 10 1/2	
" Sulphate (grey) London	per ton	11 15 0	
" (grey) Hull	"	11 15 0	
Aniline Oil (pure)	per lb.	0 0 7 1/2	
Aniline Salt	"	0 0 7	
Antimony	per ton	45 10 0	
" (tartar emetic)	per lb.	0 1 0	
" (golden sulphide)	"	0 0 10	
Barium Chloride	per ton	7 10 0	
" Carbonate (native)	"	3 10 0	
" Sulphate (native levigated)	"	45/- to 75/-	
Bleaching Powder, 35 %	nett	8 0 0	
" Liquor, 7 %	"	3 10 0	
Bisulphide of Carbon	"	11 15 0	
Chromium Acetate (crystal)	per lb.	0 0 6	
Calcium Chloride	per ton	2 5 0	
China Clay (at Runcorn) in bulk	"	17/6 to 35/-	
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20 %	nett	per lb. 0 0 8	
Magenta	"	0 3 0	
Anthracene, 30 % A, f.o.b. London	per unit	per cwt. 0 1 2	
Benzol, 90 % nominal	per gallon	0 1 8	
" 50/90	"	0 1 5	
Carbolic Acid (crystallised 40°)	per lb.	0 0 7 1/2	
" (crude 60°)	per gallon	0 2 6	
Creosote (ordinary)	"	0 0 1 1/4	
" (filtered for Lucigen light)	"	0 0 1 3/4	
Crude Naphtha 30 % @ 120° C.	"	0 0 10	
Grease Oils, 22° Tw.	per ton	2 5 0	
Pitch, f.o.b. Liverpool or Garston	"	1 6 0	
Solvent Naphtha, 90 % at 160°	per gallon	0 1 1	
Coke-oven Oils	"	0 0 1 1/4	
Copper	per ton	45 6 3	
" Sulphate	"	16 5 0	
" Oxide (copper scales)	"	42 0 0	
Glycerine (crude)	"	13 0 0	
" (distilled S.G. 1250°)	"	43 0 0	
Iodine	nett, per oz.	0 0 9	
Iron Sulphate (copperas)	per ton	1 12 6	
" Sulphide (antimony slag)	"	2 0 0	
Lead (sheet) for cash	"	10 10 0	
" Litharge Flake (ex ship)	"	13 10 0	
" Acetate (white)	"	25 15 0	
" brown	"	17 10 0	
" Carbonat.: (white lead) pure	"	20 0 0	
" Nitrate	"	20 0 0	
Lime, Acetate (brown)	per ton	6 0 0	
" (grey)	"	10 15 0	
Magnesium (ribbon and wire)	per oz.	0 2 7	
" Chloride (ex ship)	per ton	2 7 0	
" Carbonate	per cwt.	1 17 0	
" Hydrate	per ton	17 0 0	
" Sulphate (Epsom Salts)	per ton	2 19 0	
Manganese, Sulphate	"	17 15 0	
" Borate	per cwt.	2 12 0	
" Ore, 70 %	per ton	4 5 0	
Methylated Spirit, 61° O.P.	per gallon	0 2 5	
Naphtha (Wood), Solvent	"	0 0 0	
" Miscible, 60° O.P.	"	0 0 0	
Oils:—			
Cotton-seed	per ton	26 15 0	
Linseed	"	22 15 0	
Lubricating, Scotch, 890°—895°	"	7 5 0	
Petroleum, Russian	per gallon	0 0 0	
" American	"	0 0 0	
Potassium (metal)	per oz.	0 3 0	
" Bichromate	nett	per lb. 0 0 0	
" Carbonate, 90 % (ex ship)	per ton	17 15 0	
" Chlorate	per lb.	0 0 0	
" Cyanide, 98 %	"	0 0 0	
" Hydrate (Caustic Potash) 80/85 %	per ton	22 5 0	
" (Caustic Potash) 75/80 %	"	21 5 0	
" (Caustic Potash) 70/75 %	"	20 15 0	
" Nitrate (refined)	per cwt.	1 2 0	
" Permanganate	per cwt.	3 5 0	
" Prussiate Yellow	per lb.	0 0 0	
" Sulphate, 90 % (ex ship)	per ton	9 15 0	
" Muriate, 80 % (do.)	"	8 0 0	
Silver (metal)	per oz.	0 1 0	
" Nitrate	"	0 0 0	
Sodium (metal)	per lb.	0 3 0	
" Carb. (refined Soda-ash) 48 %	nett	per ton 6 2 0	
" (Caustic Soda-ash) 48 %	"	5 0 0	
" (Carb. Soda-ash) 48 %	"	5 2 0	
" (Carb. Soda-ash) 58 %	"	5 7 0	
" (Soda Crystals)	"	3 0 0	
" Acetate (ex-ship)	"	17 15 0	
" Arseniate, 45 %	"	11 15 0	
" Chlorate	per lb.	0 0 0	
" Borate (Borax)	net, per ton	29 0 0	
" Bichromate	per lb.	0 0 0	
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10 ton lots	11 0 0	
" (74 % Caustic Soda)	"	10 10 0	
" (70 % Caustic Soda)	"	9 10 0	
" (60 % Caustic Soda)	"	8 10 0	
" (60 % Caustic Soda, cream) (f.o.b.)	"	8 5 0	
" Bicarbonate	"	6 10 0	
" Hyposulphite	"	7 10 0	
" Manganate, 30 %	"	16 0 0	
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0 10 0	
" Nitrite, 98 %	per ton	30 0 0	
" Phosphate	"	15 10 0	
" Prussiate	per lb.	0 0 0	
" Silicate (glass)	per ton	5 7 0	
" (liquid, 100° Tw.)	"	4 5 0	
" Stannate, 40 %	per cwt.	3 5 0	
" Sulphate (Salt-cake)	per ton	1 7 0	
" (Glauber's Salts)	"	1 15 0	
" Sulphide	"	7 15 0	
" Sulphite	"	6 12 0	
Strontium Hydrate, 100 %	"	8 10 0	
Sulphocyanide Ammonium, 95 %	per lb.	0 0 0	
" Barium, 95 %	"	0 0 0	
" Potassium	"	0 0 0	
Sulphur (Flowers)	per ton	8 0 0	
" (Roll Brimstone)	"	0 0 0	
" Brimstone: Best Quality	"	0 0 0	
Superphosphate of Lime (26 %)	"	0 0 0	
Tallow	"	0 0 0	
Tin (English Ingots)	"	0 0 0	
" Crystals	"	0 0 0	
Zinc (Spelter)	"	0 0 0	
" Chloride (96° Tw.)	"	0 0 0	

mittee to arrive at a decision. Judging from the duration of the consultation, which the Committee held in private, the task was no less difficult than we imagined it, but a decision was ultimately arrived at to the effect that the provisional order should not be confirmed.

THE INSTITUTE OF CHEMISTRY.

As compared with last year, the annual general meeting of the Institute was this year but an insignificant affair. But it is perhaps all the more satisfactory that such should be the case. A perpetual state of excitement militates against the healthiness of any society or institute, and the very insignificance of the meeting is in itself full of significance, for it shows by the absence of the effect that the cause has either been removed or will be. It will doubtless afford satisfaction to those whose sympathies have been with the promoters of the scheme to introduce new blood into the Council, to know that the plans for the laboratory of the Institute, which will accommodate from twenty-six to twenty-eight candidates and be used for examination purposes, are advancing satisfactorily. The new regulations concerning the qualifications of candidates for membership have been referred to before.

The limitations of professional etiquette still remain a moot point, and much difference of opinion is rife. The proceedings in the past, however, show that open discussion has been productive of good, and we trust the same procedure will lead to similar results in this instance.

It was only natural to expect that the Council would repudiate the suggestion that they had been influenced in any way by the pressure which has been brought to bear upon them during the past eighteen months, and it is just as well to allow the implication thrown out by the President in his address—that all the present changes would have been made, agitation or no agitation—to pass unchallenged. What matters, so long as the old order has been changed? Those who are conversant with the doings of the past two years can see through a brick wall as well as most people, and it is far better to co-operate in the furtherance of the new status than to waste time, and breed bad feeling by baneful bickering.

ADULTERATED FOOD.

Butter, milk, and cheese are articles of food which are subject to much adulteration in this country. Possibly a lot of the adulteration which goes on would never come to light if we were not possessed of public analysts. Fortunate as we may be in this matter our American cousins are not less so. The Massachusetts State Board of Health seems a most energetic body. Their handling of the sewage question was good testimony of their fitness, and they have laid bare the chief forms of adulteration which are practised upon their fellow beings in a manner equally explicit and emphatic. The vigilance with which margarine manufactories are inspected in the United States perhaps accounts for there not being a single instance of adulterated butter in the course of a month in the State of Massachusetts. In the matter of milk we are more fortunate however, for considerably more than half the samples, out of 276 tested, were either adulterated or suspiciously poor. Spices are generally pretty well adulterated, and the usual 40 to 50 per cent. of nut shells, &c., in pepper is recorded. Mustard, composed of from 40 to 70 per cent. of rice and turmeric, is rather a startling announcement, but the whole is explained when we read that the vendors offer gifts of reclining chairs, and the like. We should not be surprised if it proved necessary to use the gifts after stimulating digestion with nut shells and turmeric.

Though we have similar frauds shown up over here, the effect of such disclosures is largely discounted by the way Government authorities burke the question, and we shall like to see the effect produced by turning the Massachusetts Board of Health loose in London, and to read the report they would make after a month. We might learn something or two, perhaps.

DISEASES INCIDENT TO WORKPEOPLE IN CHEMICAL AND OTHER INDUSTRIES.

FOR the annual address to the Chemical and Physical Society at University College, London, Mr. Watson Smith took the subject which heads this article as the subject of his address. The question of unhealthy employment has received a lot of attention lately, and its importance to chemical manufacturers. About one third of the address was devoted to the chemical trade, and we are able, thanks to the courtesy of Mr. Watson Smith, to cull such portions of the address as are of more particular interest to the chemical trade. In opening his address the speaker said, the duty he felt incumbent upon him to place in the first place in addressing the meeting on the subject he had chosen to render the highest testimony to that most useful work of civilisation, philanthropy and hygienic science, which has recently been made in the book of Dr. J. T. Arlidge, entitled "The Hygiene, Diseases, and Mortality of Occupations." But, continuing, he said, "I shall bear carefully in mind this title, and note its unsensational character. I make this request advisedly, because I know that some odium has already begun to attach itself to the work on account of the fervent over-wrought zeal of some of its reviewers in the press, and notable writers and reviewers of the *Daily Chronicle*, wherein Dr. Arlidge's eminently correct and sober title is changed for the highly sensational and exaggerated one, "Death in the workshop."

In acknowledging the liability of potters to suffer from what is known as potters' rot, produced by inhaling the peculiar dust of that trade, the speaker quoted Dr. Arlidge's own words, viz:—"This is every potter admits, and rational people would expect that every potter would gladly use whatever means against this source of danger could be devised. But the marvel is that the artisans view their danger with astonishing indifference." "Plans introduced from time to time to amend their conditions of labour have oft been frustrated by the negligence or wilfulness." Arlidge goes on to say: "They wear respirators for fear of being laughed at, and because it is a little trouble to breathe through them. Their sense of British independence here, according to Arlidge, stands in the way, and prevents the introduction of many sanitary regulations such as exist in the best manufactories of France and Germany. Dr. Arlidge then actually suggests the advantages in favour of using wraps round the mouth and nose instead of the respirators, a device thought so ill of and abused so in the press, in the case of the bleaching-powder packers, and to a muzzler." Let me quote Dr. Arlidge's words: "A filthy cotton-wool, or a fold or two of crape, would more thoroughly and cheaply exclude the dust, and would be less stifling, easily removable, almost costless."

Just so, and now let me say that every word of all the preceding applies to the dusty and choking process of packing bleaching-powder, and I know, from past personal experience, that numerous plans have been tried to help the packers. Light mackintoshes have been provided, helmets and respirators, and what was the result? Just the same as with the potters. They wilfully destroyed these things, would not wear them, but would return to their wrapping-cloth, "muzzles." But I will tell you more of certain of these packers, as well as the still men at the chlorine-stills. They hold a dogma, some of them, which they have so insisted on, that certainly the masters have believed in it too—that the best and only cure for the result of inhalation of chlorine gas, or dust, or acid vapour, is a "wash-down" with rum or whiskey. The custom has thus sprung up of going to "the office" on such occasions, when frequently more than allowed, and the alcoholic is taken.

Now, the alkali firm I was once with objected to this kind of thing, and provided the light mackintoshes and other protective gear already referred to, on the condition that no more "drink-money" be allowed. It was speedily found that this new "toggery," respirators, &c., had a way of wearing out and coming to pieces with marvellous rapidity. This brings me to the following sentence in the *Daily Chronicle* review:—"For the most part Dr. Arlidge's moral is to exhibit the avoidable shortening of the lives of our brothers and sisters for the simple reason that it suits certain manufacturers to produce wares under conditions which make healthy living impossible, and it has not yet occurred to the State to step in and prevent them."

first part of this phrase I entirely agree with, but the second and third I take, in the main, entire exception to. It does not "*suit certain manufacturers* to produce their wares under conditions that make healthy living impossible." I do not in the least believe it. If it were so, it was Dr. Arlidge's duty to specifically point out the precise course to take, so to produce the wares as to fulfil those conditions which would make healthy living possible. The manufacturers know it does not suit them to have unhealthy workpeople; they do not know how to fulfil the conditions, and many of their efforts have been thwarted.

While advocating the advisability of appointing a small body of medical experts to advise the Home Office, the speaker said: Let me illustrate the extreme difficulty for some of the less educated or well-trained of the medical practitioners in our manufacturing towns in diagnosing correctly complaints or symptoms, through the very confusion induced by the seeming multitude of conditions of chemical factory occupations. Here is a case fully within my own experience, when I was engaged in the management of alkali processes in Widnes, Lancashire. A workman accidentally put his foot into some hot caustic soda liquor during night-duty. His fellow-workmen induced him to wash the foot first with water and then with hydrochloric acid, and he actually dipped the foot into a bucket of this acid, with the idea of neutralising the alkali. I was told that a fit of shivering and shuddering was thus induced. The man was taken home and attended by the factory doctor the family called in, and I was informed the case was proceeding hopefully. In three days, not feeling satisfied with the report of the workmen, I went to visit the man at his home, and on the way met this doctor's assistant, who told me the case was going on nicely, but it was now more one of rheumatic fever than anything else—the foot was getting better. I continued my journey, and found the man with his jaws set in a peculiar manner, and on inquiry I found he could not swallow, the attempt resulting in painful convulsions. His wife had been told to rub the neck and chest at such times with hartshorn and oil. The man protested, as well as he was able, that he was being wrongly treated, and that what he was suffering from was connected somehow with the fit of shudders he suffered from on dipping the foot into acid. Well, I saw *tetanus* in these symptoms at once, and *why*? Simply because *I knew precisely the conditions of the injury contracted*, though I knew little enough of general pathology, anatomy, etc. I at once changed the doctor for a man I knew, and began by stating that tetanus was the trouble. On seeing the patient this was at once admitted, and the second man said he should have had hopes of saving the life had he been called in earlier. Of course this workman died.

Passing to the question of bleach packers Mr. Watson Smith said: I do not object to Dr. Arlidge's account even of the bleaching-powder workers; it is sober and circumstantial, though containing a few errors. He says practically of the packers who enter the leaden bleaching-powder chambers what he has already said of the blacksmiths, they must be strong and sound of lung and limb, or they will have to give it up again. To make these products is impossible without some risk and strain. Let us hear what Arlidge says:—"When the labourers get an overdose of the chlorine, they are said to be 'gassed.' This is not of frequent occurrence, but now and then it ends fatally. When it happens, it must be attributed almost always to recklessness."

If means can be found for improving the hygiene of the alkali works, let them be put forward, but I know the alkali manufacturers would say, and truly say, that nothing but the support of an Act of Parliament or definite legal enactment, could enable them to compel their bleaching-powder men to abandon their so-called goggles, wraps and bandages for any other gear, and it is doubtful then if that would do it. Nor am I sure that those wraps and bandages could be improved upon.

Dr. Arlidge suggests exhaust-fans to clear a chamber of chlorine gas before the men enter. This is unnecessary; a connecting pipe is simply laid on to an adjoining chamber packed with fresh lime which absorbs the gas so greedily that it soon draughts over and is replaced by air in the chamber to be cleared.

The speaker then went on to discuss the question of wages, and adduced evidence based on the statements of the workers themselves, as to the nature of their work. Adverting to the steps enforced to protect bleach packers, the following particulars were cited:

Before 1886 a man would go to a chamber, and judging as to the complete absorption of the chlorine gas by a mere rule-of-thumb process, would proceed to open it, not unfrequently to find the gas only partially absorbed, sometimes still with a content of 100 grains of chlorine per cub. ft.; often with 15 to 18 grains of chlorine. The result of finding such a choking atmosphere was a rapid scuttling away of the man for fresh air. Even then, such rule-of-thumb or guess-work process was often due to negligence in keeping the glass windows or "sights" clean. Now, *i.e.*, since 1886, these errors are prevented (except of course in cases of sheer wilfulness) by a rule made obligatory by the General Inspector in 1886-87, *viz.*, that no doors shall be opened until by a suitable test the internal atmosphere is found to contain something below 5 grains of chlorine per cub. ft. The amount I understand that is usually kept to is 1 grain per cubic foot. A simple

automatic test is provided for this purpose. To show how willing the alkali manufacturers are to meet the Inspector in any devices for the sake of the health and comfort of the workers, let me tell you that Mr. Brock (*the Chairman of the Alkali Union*) introduced a process (the device of his manager, Mr. Minton) for more quickly removing the chlorine, *viz.*, by the diffusion of lime-dust through the chamber space. As it settles, this dust absorbs the residual chlorine gas, and finally a harmless atmosphere remains.

Want of space compels us to refrain from quoting much more that is of interest, for the address goes into phosphorous poisoning, the dangers of white lead manufacture, and the effect of carbon disulphide, so largely used in the rubber trade. The address, however, can now be obtained in the form of a pamphlet of some thirty-four pages for a shilling from the Chemical and Physical Society, and we strongly advise all chemical manufacturers and others engaged in kindred trades to get a copy and give the same a careful perusal.

THE TREATMENT OF MANUFACTURERS' WASTE WATERS.

MENTION was made last week of the report made by Mr. R. A. Tatton, C.E., Chief Inspector to the Mersey and Irwell Joint Committee on the purification of manufacturers' waste waters. After making reference to the report of the Royal Commission in 1868, the report of Dr. Angus Smith on the Rivers Pollution Prevention Act of 1876, and the report of Sir H. E. Roscoe, on which the work of the Joint Committee is based, the text of Mr. Tatton's report was as follows:—

Paper-works.—The question of pollution from paper mills is dealt with in the first and fourth reports of the Commissioners. A full description is given of the process, which does not differ materially from that of the present day.

The different kinds of refuse are divided into four heads:—

1. The product from the dusting process.
2. The lime refuse from the treatment of the soda to make it caustic.
3. The alkaline waste liquor.
4. The insoluble part of the bleaching powder.

The first refuse is solid, and valuable as manure, and there is no excuse for throwing it into the river.

The second refuse, which is also valuable as manure, can be drained in pits, or it may be pressed and carted away. The same remark applies to the fourth refuse.

The third refuse the Commissioners report to be at once a source of injury, the most serious and the most difficult to meet. It consists of the alkali liquor in which the straw, esparto grass, rags, or whatever material is used in the preparation of paper, has been boiled, and also of the water in which the material is subsequently washed. The first part of this liquor—namely, that from the boilers—is very foul; but in cases where a large quantity of soda ash is used (as with esparto grass), evaporators may with advantage be put down, as the quantity of soda ash saved is said to pay for their erection. The remainder of the alkali liquor which comes from the washing machines (also that from the boilers if evaporators are not in use) must be treated differently, and the Commissioners report in favour of land filtration.

Since the date of the Commissioners' report, however, great progress has been made in the reduction of pollution, especially at the paper-works on the North Esk, where, in consequence of litigation with the landowners lower down the river, means for rendering the waste waters innocuous have been brought to greater perfection than perhaps anywhere else in the country. The improvements in this respect have been carried out in the manufacture of the paper itself by retaining more of the fibre, and therefore allowing less to go down the river. It is satisfactory to find that the restrictions have been the cause of a distinct saving in material to the manufacturer, all the fibre which is allowed to escape being loss to him. The most important improvement is effected by washing the esparto grass in a series of tanks after it has left the boilers, and before it goes to the ordinary washing machines. The water used in these tanks flows from one to another, and the arrangement is such that (supposing the series to consist of 10 tanks) each boiling of grass receives ten washings, the pure water being turned in the first instance on to the boiling, which has already been washed nine times, and finishing with the boiling which has been last brought from the boiler; the water is then used in the boiler itself, and is finally taken to the evaporator. This system not only largely reduces the pollution by removing most of the alkali liquor before the grass goes to the ordinary washing machines, but also saves a considerable percentage of fibre. It should certainly be adopted at all mills where esparto grass and straw are used.

With regard to the settling tanks used on the Esk, they also show a great improvement both in economy and efficiency over the tanks in this district. All the waters not treated in the evaporators flow to the

tanks, which in the most efficient systems are arranged as a series of shallow channels, 40 feet long and two feet in width; the water flows over sills at each end of the channels, which must be of sufficient area to keep the water as quiescent as possible. The sludge from these tanks is dried, and if consisting of fibrous matter only, as from rag washings or from the machines, it may be sold for making inferior kinds of paper, thus making the tanks remunerative. The effluent water is finally passed through cinder filters 18 inches in depth, and care must be taken that it is either neutral or slightly acid before getting into the river.

Dr. Angus Smith's report gives the results obtained by treating the effluent with chemicals. The precipitation takes place quicker, and consequently the tanks need not be so large; also the treatment is more likely to be efficient without filtration, which is apt to be a troublesome process.

To summarise, I would suggest that all paper-makers who use esparto or straw in any quantity should erect evaporators and washing tanks such as I have described, and that the whole of the remainder of the waste waters should be treated in settling tanks. It might be misleading to give a minute description of the settling tanks, as different works will necessarily vary in their requirements; but any system adopted should be planned with a view to the sludge being remunerative.

Paintworks and Dyeworks.—The pollution from this class of works is caused by aniline dyes, logwood, and other wood extracts, soap, starch, fustic, soda, bleaching powder, etc. All waste waters which contain these must be treated, with the exception of the wash waters, in which the polluting matter is so small in comparison to the quantity of water used that unless unusually foul they may safely be allowed to go into the river.

In certain cases no doubt there will be a difficulty in separating the wash waters from the dye and more polluted waters, and some manufacturers may find it more economical to treat the whole than to lay down a second system of drains.

For the treatment of these waste waters the Royal Commission recommend filtration through land; but as land in sufficient quantity is in most cases difficult to obtain, I think we must look to chemical precipitation, with or without subsequent filtration through artificial filters, as the process to be adopted.

One of the most efficient purification systems in the watershed consists of three brick tanks and a filter. The tanks are so arranged that the waste water can be turned through all three tanks in succession, in which case there is a constant though slow flow, or it can be turned into a single tank, allowing the other two to remain quiescent for the solid matter to precipitate. After issuing from the tanks, the effluent is passed through the filter. The filtering material used is cinders, which have been found more efficient than sand; but I think that if the sand used was of a good, sharp quality it would give better results than cinders, and be more easy to clean.

The precipitant used is put into the channel which conducts the waste water from the works to the tank, so that the whole is thoroughly mixed together before its arrival at the tank. This mixing is of the greatest importance, and on it depends the efficient action of the precipitant. It may be aided by bafflers or boards placed in the channel, to cause disturbance of the stream.

A convenient way of applying the precipitant is to have it in solution in a cask, with a tap arranged to discharge into the channel. The tap can be regulated to give the required quantity.

The effluent from the tanks is drawn off by floating valves which admit the surface water only, and which must not be allowed to sink below the depth of the clear water. The sludge below this depth must be either pumped out or run through valves in the bottom of the tank into a sludge well. Neither from the sludge well nor from these valves in the bottom must there be any communication with the river.

I have purposely given no details as to size of tanks, as such information may be misleading, but as a general rule a good system should consist in the first place of a large tank or pit containing a day's supply; into this tank the whole of the waste waters from the works should be run, "when," as pointed out by Dr. Angus Smith, "large precipitates occur, and frequently complete neutralisation arising from this—namely, that the processes have required equivalent amounts of acid and alkali, although they escape separately."

From this tank the effluent must pass by means of a channel to the precipitation tanks, and the precipitant used must be put into this channel.

The precipitation tanks should be at least two in number, and arranged to be used alternately. They should each contain half a day's supply, and be fitted either with floating valves or some other means of drawing off the clear water. The sludge may be pumped from the tanks direct, or, what is better, drawn off into a sludge-well, which will enable the tank to be got to work again quicker. What precipitant is best to use each manufacturer must decide for himself; but Dr. Angus Smith's report gives a number of experiments, and shows what results can be obtained—in one case 99·8 per cent. of colour being removed.

Several patent processes have been brought out which deal with these waste waters in considerably less space than is required for the ordinary method; manufacturers who have not room for large tanks should consider the advisability of adopting one or other of them.

Bleachworks.—The waste waters from bleachworks vary considerably according to the class of goods dealt with.

The waste bleacher's refuse is the worst, as a large amount of oil and dirt comes away from the goods, in addition to the lime, soda, etc., used in the process. The water from the kiers in which the pieces of yarn are boiled should in all cases be treated, also all solid lime refuse must be kept out of the river; the wash waters may, as a rule, be allowed to go direct into the river except in certain cases (including waste bleaching), when part of them will require treatment. These should be concentrated as much as possible, in order to reduce the quantity.

Precipitation in tanks is probably the best treatment, as the subsidence of the solid matter is assisted by the large amount of lime in the water. The most successful system I know of in operation consists of a succession of large pools, through which the water slowly flows; it is finally passed through a cinder filter before being admitted into the river. No additional precipitant is used, but I think it probable that if one were adopted a great improvement would be the result, and the size of the tanks could be considerably reduced.

Woollen Works and Fullers.—The waste waters from these works are very offensive, and in some parts of the watershed are responsible for most of the pollution. They contain animal oils from the wool, soap, soda, and fullers earth. These may be readily dealt with by means of precipitation and filtration, as has been proved at several works where a purification plant has been put down. The most efficient system in the watershed consists of two settling tanks, three precipitation tanks, and one sand filter. The settling tanks, which are made from two old boilers, retain most of the heavy matter and fullers earth, and considerably relieve the precipitation tanks through which the waste water flows next; these tanks are used alternately to allow of those not in use being cleaned out. The sand filter completes the treatment. Alumino ferric is the precipitant used, and is introduced into the channel leading to the settling tanks. Another firm has lately been experimenting with sulphate of iron and lime with good results.

Sap-pits for the recovery of the soap, which have been almost universally adopted, can be used in conjunction with a system similar to the above.

Dr. Angus Smith gives a large number of experiments with various precipitants, particulars of which will be found in the Appendix.

The Royal Commissioners in their report recommend application to land, either by irrigation or intermittent filtration, as the best means of dealing with these liquids. This plan might well be adopted where land can be obtained in sufficient quantity and of suitable character, or land might be used instead of the sand filter after the water has passed through the precipitation tanks.

Very efficient plant has been erected at the woollen mills at Gala-shiels, and the effluent obtained is good enough, in the estimation of Mr. Fletcher (Inspector under the Rivers Pollution Act) to entitle the manufacturers to a certificate under the Act. The waste water is very foul—the impurities consisting of soap, animal grease and dyes—the result of every stage of manufacture from the fleece to the finished cloth. The different waters are purified by precipitation in tanks—lime being used with the dye and acid with the soap liquors; the two being finally mixed together and further neutralised if necessary before being admitted into the river. The precipitation of the solids is aided by the introduction of air forced through perforated pipes into the tanks. One man is continually employed attending to the tanks and pipes, etc., connected with them. This system is probably the most efficient in the country, and has been universally adopted on the River Gala, the water of which must previously have been seriously polluted.

Silkworks.—The chief pollution from these works is caused by the gum, which is removed from the raw silk by washing in a solution of soap. The waste may be treated by processes well known to the silk manufacturers. The dye-water will require treating in the same manner as from print and dye-works.

Chemical Works.—The waste waters from this class of works are so various that it is impossible to lay down any general rules for their treatment, as stated in Sir Henry Roscoe's report. Each case will require to be taken separately, the composition of the effluent water ascertained, and if inadmissible either into the river or sewers, some means of chemical treatment adopted. It might perhaps be possible to have a schedule drawn up, showing how the usual products which are run to waste may be dealt with, and whether they are admissible into the river or sewers.

Breweries.—The washings of barrels, fermenting vats, and cooling tanks make up the waste waters from these works. The refuse is of a very obnoxious character, and seriously pollutes any stream into which it is discharged. It should be precipitated in tanks, and subsequent filtration would probably be attended with good results.

Tanneries and Fellmongers.—The waste waters from these works are most offensive, and must be rigorously excluded from the streams. The

readiest means of dealing with them, after passing them through tanks to intercept the bulk of the solid matter, is to admit them into the sewers. The quantity of water used is not large. If there are no sewers near the works, some treatment must be adopted; probably a treatment similar to one of those adopted at sewage works would prove the most efficient. One manufacturer has put down a precipitation tank and filter which does its work fairly efficiently.

Slack Washing is a process employed at some collieries for separating small coal, which would otherwise be of little value, from the refuse with which it is mixed when brought up from the pit. The effluent water contains a large amount of solid matter in suspension; it may readily be treated by passing it through settling tanks, which should be put down at all collieries where this process is used."

The details of the experiments given in the report of Dr. Angus Smith, showing the action of alum and lime on dye works effluents, &c., were added to the Chief Inspector's report in the form of an appendix, which it is not necessary to reproduce here as they may be seen in their entirety in the original report.

SOCIETY OF CHEMICAL INDUSTRY.

SCOTTISH SECTION.

THE usual monthly meeting of the Section was held in Edinburgh on the 7th inst., at the society's rooms 4, Queen-street, Mr. C. A. Fawsitt, President of the Section, in the chair. After routine business, Mr. W. Iverson Macadam, Edinburgh, proceeded with his promised communication on "the relative illuminating value of coal gas when consumed under different burners and under varying pressure." In consequence of an inquiry entered into concerning the quality of the gas supplied to the citizens of Edinburgh, he had arrived at the conviction that the good properties of the article furnished were often marred owing to excessive pressure in the supply pipes, and through the burners, resulting in a lowering of the illuminating value. This error arose, he thought, out of the mains being too small, and thus preventing adequate passage except under excessive pressure. Gas was at its best for burning when reaching the burner leisurely; a condition barred in Edinburgh so long as the present mains and regulation pressures were maintained. The Leith supply works had a great advantage over those of Edinburgh, their maximum night pressure being only one half that of Edinburgh. After detailing the numerous experiments he had carried through with different burners and varying pressures, he said he had come to the conclusion that under present conditions in Edinburgh there could not be at once an economic and efficient burning except by the expedient of fitting a supply regulator to every burner in use. Incidentally he referred to the system lately adopted in the burgh of Peebles, viz.: that of procuring the gas not from coal, but from mineral oil, and commended it for both cheapness and efficiency. In the conversation which followed, it was remarked that if the example of Peebles were followed to any extent by other towns, the movement would help the Scottish mineral oil manufacturers in their present time of need. Higher temperature tended to injure the illuminating power of gas. When there happened to be a variation in the quality of the gas furnished, a corresponding change of burner was necessary, in order to procure the best result. Councillor Hunter spoke in defence of the Gas Corporation of Edinburgh, which had come in for much abuse for not lowering their price when lowering strength, and said that the Gas Commissioner had done right in not adopting oil gas while the innovation was only in the experimental stage. A vote of thanks to Mr. Macadam concluded the proceedings.

NOTTINGHAM SECTION.

A meeting of this Section was held at University College, Nottingham, on Wednesday evening, March 8th, Mr. L. Archbutt, F.I.C., of Derby, being in the chair. There was a good attendance of members, including Mr. Paton, Mr. W. P. Thompson, of Liverpool; Mr. Johnston, of Newark; and Mr. Carulla, of Derby.

THE PATENT LAW AMENDMENT COMMITTEE.

Sir John Turney and Messrs. J. B. Alliot and F. J. R. Carulla were elected members of a committee of the society which is being formed to consider the amendment of the patent laws. Professor F. Clowes, D.Sc., then gave a lecture upon "Testing for gas by means of the hydrogen flame," in which he detailed the results of many experiments which he has made in testing for gas when using hydrogen in his modification of the Ashworth-Hepplewhite-Gray, safety lamp. The lecture was illustrated by lantern slides, diagrams and experiments. A discussion took place at the close and a hearty vote of thanks was accorded to Professor Clowes.

Reports of Companies.

WOODHOUSE AND RAWSON UNITED, LIMITED.

A meeting of the shareholders of Woodhouse and Rawson United, Limited, was held on Tuesday, last week, at the City Terminus Hotel, London—Mr. W. Squire in the chair,—to receive the report of the Committee appointed at the last general meeting.—The Chairman stated that the report had been the outcome of a great deal of hard work on the part of the Committee, who had been rendered great assistance by the solicitor and auditor of the Company. He afterwards went through the accounts, and stated that, in the opinion of the Committee, during the two years in which the dividend was paid it ought not to have been taken out of profits, but out of the guarantee fund, provided for the purpose. A great change occurred in the third year. The unsaleable securities had to be written down and the properties to be depreciated in value, the result being a loss, which was under-estimated, although it appeared to be heavy at the time. The Company was established as an electrical manufacturing concern, and, so far as the Committee could gather, this part of the business had been neglected, and had been carried on very unprofitably, while none of the branches which had been established had shown a surplus. They had done all they could to arrive at the actual financial position of the undertaking. The securities—for the most part unsaleable at present—had been taken at £25,000.; and the goodwill, standing at £99,000., and the patents, £73,000., had been taken together at £20,000. The Company was solvent, and he believed there would be just about enough to pay off the whole of the liabilities. The total assets amounted at the values of the Committee to £231,148. and the total liabilities to £228,236. The great difficulty which would be experienced in the future would be the interest which had to be paid on their enormous amount of debenture stock. The only hopeful proposal which the committee could suggest was that a new company should be formed to take over the whole of the undertaking of the old Company. The new company would have a small capital, and would not be burdened by a heavy amount of debenture interest. They were not, however, prepared to submit any scheme at present, as it was only within the last few days that they had ascertained the position of the Company. The price paid for the goodwill and patents, in his opinion, was so heavy that the Company had been left with an amount of working capital quite insufficient.—Mr. F. L. Rawson, managing director, stated that the report had been drawn up very hurriedly, because he had urged the Committee to call the meeting as early as possible, as the Company would have to stop working if fresh money was not provided. The Committee had therefore not had an opportunity of submitting their report to the directors. After referring to the various works, he stated that large sums had been expended by the directors in endeavouring to make the industrial part of the business a success, but he feared that this had been done without proper organisation. In valuing some of the securities the Board had, he admitted, made mistakes, but this was only what had been done by many of the trust companies. As far as he himself was concerned, he had done his utmost to promote the welfare of the Company, and had obtained a large amount of money from friends which he had lent to the Company.—A discussion followed, and eventually a resolution was passed authorising the directors to send a copy of the Committee's report to the shareholders.—Mr. Rawson added that the directors were considering a scheme for reconstructing the Company, which would be laid before the shareholders at a special meeting to be held after the adjourned ordinary general meeting.

BELL'S ASBESTOS CO., LTD.

The ordinary general meeting of this company was held on Thursday last week, at the City Terminus Hotel. Mr. John Bell, who presided, observed that the year to which the report and accounts referred was one of a series of three years in which it had been exceedingly difficult to make money, the last of the three having been the worst. Nearly all the trades upon which their company depended for business were in a deplorable state of depression, and on all sides they had been asked to make the cheapest possible goods, every one desiring to curtail expenditure and to purchase that which would do temporarily. Through the energy of the managing director and his staff they had been able to meet the requirements of their customers, and, instead of any falling-off in their manufactured goods, they had made more money than in the previous year. That, however, was not the case as regarded the sale of crude asbestos, which showed a very heavy falling-off. With reference to the question of the depreciation of their asbestos estates, additions were always going on, and after charging to revenue the cost of repairs, they had written off regularly 10 per cent. from the machinery and 5 per cent. from buildings, which had brought down the cost of the estates in Canada very considerably. The stock-in-trade they had dealt with with considerable severity, as usual. Their freehold premises

In Southwark-street were completed, and they entered upon them in November. They had experienced very great convenience from them, and they would be able to manufacture in future at a lower cost than before, and to display goods to much greater advantage. He believed they would increase their trade very materially from their improved buildings. The freehold of the buildings had been purchased for £25,000., which had been raised by mortgage at 4 per cent. All the expenses connected with the premises were included in the cost of £49,956., and they wrote off annually $2\frac{1}{2}$ per cent., which was the usual thing with respect to freehold buildings. The term of five years for which he undertook the chairmanship of the company had now expired. During that period they had written off rather more than £9,000. of debentures, created a reserve fund of £55,000. (of which £15,000. had been out of ordinary trading profits), and they had distributed £84,000. in dividends, including the dividend now recommended. Considering that three out of the five years had been years of great commercial depression, he thought they had a fair record to show. He concluded by moving the adoption of the report. Mr. H. Heywood seconded the motion, which was adopted.

PRICE'S PATENT CANDLE CO., LTD.

The annual report of this company states that in volume the company's business during 1892 continued satisfactory, but in the latter part of the year the disruption of the amicable working agreements which had for a considerable time previously subsisted between the principal producers of paraffin in America and Scotland, and between them and a large majority of the candle-makers in the United Kingdom, caused the prices of candles to be less favourable to the company than those which prevailed during the earlier months. The profit of 1892 amounted to £65,080., to which has to be added £7,119. brought forward. Deducting the dividend paid in September, and writing off the usual £12,500 for depreciation of fixed properties, there will remain an available balance of £36,262. In their report of March 10, 1892, the directors called attention to the fact that the company had no reserve fund, and that when the writing off of the goodwill account had been accomplished, it would be prudent to commence the formation of such a fund. The goodwill account was extinguished by the shareholders devoting, at the general meeting on March 18, 1892, £10,000. to that purpose, and the directors, considering that the formation of a reserve fund should for prudential reasons be now commenced, propose to devote £5,000. to that object, thus reducing the balance to £31,262. Out of that sum the directors recommend a dividend of 12s. 6d. per share, making a distribution of £1. 5s. per share for 1892, and leaving £7,825. to be carried forward.

THE UNITED ALKALI CO., LIMITED.

The second annual meeting of the shareholders of the United Alkali Company, Limited, was held on Friday, 10th inst., at the Law Association Rooms, Liverpool. Sir Charles Tennant, Bart., presided, and there were also present: Messrs. James Hawke Dennis, Colonel Gamble, C.B., and Holbrook Gaskell (vice-presidents), Mr. John Brock (chairman of directors), and the following directors:—Messrs. Thos. Alexander, J. C. Gamble, William Gamble, Holbrook Gaskell, jun., Lieut.-Colonel James B. Gaskell, D. M'Kechnie, W. J. Menzies, E. K. Muspratt, George Pilkington, John A. E. Rayner, Robert Shaw, George Lloyd Wigg, Phillip J. Worsley, Alfred Allhusen, C. E. Barlow, John E. Davidson, James Tennant, J. R. Wylde, and Charles Wigg (vice-chairman of directors.)

In opening the proceedings, Sir Charles Tennant said that his position was rather that of a representative of the shareholders than as a member of the Board. Before asking the shareholders to adopt the report he would call upon Mr. Brock to say a few words, and it would then be open to any shareholder to make what observation he thought proper.

Mr. Brock, who was very well received, then delivered his annual address, in which he said that the report and financial statement showed a fairly prosperous year, notwithstanding that in some departments—notably copper—prices had been low and unremunerative. The directors had continued during the year the policy of concentrating manufacturing operations in those works and localities where the goods could be produced best and cheapest, and had steadily endeavoured, by the application of new and cheaper methods of manufacture, to reduce the cost of production, while maintaining the quality. This had enabled them to further reduce the price of some staple articles, thus giving the consumer the full benefit of the efforts in this direction, and carrying out their aim, viz., manufacturing at the lowest possible cost and selling at the lowest possible price, consistent with a fair return to the shareholders. They were constantly receiving offers of new processes, and none were rejected without careful consideration. Such

processes as on investigation were deemed worthy of trial were tried, and if the trial was satisfactory, were adopted. It was, in fact, vital that they should have the means of testing and, if necessary, adopting new processes of manufacture as they presented themselves. They were at present engaged in effecting considerable alterations and improvements in one important branch of manufacture—that of the production of chlorine—which would place them in a very strong position. This activity of invention, however, entailed much labour, anxiety, and expense, and made it imperative to build up a large reserve fund. The new works at Fleetwood for the production of soda by the ammonia process were steadily progressing, and would be manufacturing in a few months' time, while the salt property at the same place was being rapidly developed. For the past year the gross profit had been £923,693. 9s. 5d.; interest on investments, £2,386. 4s. 10d.; transfer fees, £397. 7s. 6d.—making a total of £926,477. 1s. 9d. The £51,584. 9s. 1d. for general head office expenses, &c., was larger than the previous year, and was explained by having concentrated at the head office certain clerical work formerly done at the several works. After allowing £4,642. 9s. 11d. for bad debts, they had a balance of profit of £863,107. 14s. Out of this debenture interest took £121,874. 12s. 6d., leaving £741,283. 1s. 6d., and they proposed to pay the usual 7 per cent. on the preference shares and 6 per cent. on the ordinary shares, or altogether £195,149. 16s. 6d., leaving a balance of £379,144. 8s., which they carried to the reserve fund, making the total reserve £569,354. 3s. (Applause.) They would, he thought, consider this a satisfactory statement—(hear, hear)—and the decision to liberally strengthen the reserve fund would, he was sure, have their approval. (Hear, hear.) For the present year the prospects were good. A large portion of the out-turn in most articles was already sold, and though prices in some branches were lower, they had every prospect of making a satisfactory average by increased economy in manufacturing and a larger total production. (Applause.)

In seconding the motion for the adoption of the report Mr. E. K. Muspratt said that the shareholders would notice by the report that special attention had been paid to the matter of securing an adequate reserve fund, and he thought that this was a wise policy for the company to adopt. Chemical manufacture was always open to new inventions, and the directors desired not only to place themselves in a position so that by the present modes of manufacture they would be able to produce as cheaply as possible, but also that if any new invention came into the market they would be able to secure that invention on account of their having a large disposable reserve. (Hear, hear.) From the very beginning it had been their policy to cheapen production, and this could only be done either by new inventions or expenditure in plant, so as to secure the best possible return for their outlay. It had been said at the formation of the company that the promoters were only desirous of securing profits to themselves, and afterwards selling out their shares as quickly as possible, but he was glad to say that that had not been the policy of the vendors of the company. (Hear, hear.) Their policy had been by amalgamation to secure that knowledge of the manufacture which would lead to cheapness of production, and he could say that every one of the directors had a practical acquaintance with the principles of the manufacture. (Applause.)

Sir Charles Tennant said that the shareholders must have all along considered the report as very satisfactory, and this feeling had not been lessened by the two speeches to which they had just listened. It appeared to him that the policy was thoroughly prudent and conservative, and deserved their very best support. A large reserve fund in a trade like that of chemical manufacture, in which the activity of invention was more characteristic and continuous than in any other industry, necessitated a large reserve, and he hoped that it would continue to increase in as large a ratio as it had done in the last two years, in which time they had raised £569,000. The works at Fleetwood were progressing, and he hoped that in a short time they would get the benefit of the ammonia soda process, which had proved so valuable in other hands. The large item on the balance-sheet for head office expenses included, amongst other things, the income-tax, auditors' fees, and other expenditure which might very properly have come under a separate head, and he hoped that this would be done in future.

The motion for the adoption of the report and payment of the dividend was then unanimously carried.

The Chairman then moved that Messrs. E. K. Muspratt, G. Pilkington, R. Shaw, J. C. Stevenson, and G. L. Wigg be re-appointed directors, and this was seconded by Mr. Melland, and carried unanimously.

On the motion of Mr. Timmis, seconded by Mr. Snape, Messrs. Stead, Taylor and Stead, Messrs. T. W. Read and Co., Messrs. Finney and Co., and Messrs. Monkhouse, Goddard and Co. were re-appointed auditors at a salary of 400 guineas for each firm.

On the motion of the Chairman, seconded by Colonel Gamble, a hearty vote of thanks was accorded to Mr. Brock; and votes of thanks to the president and staff having been passed, the proceedings terminated.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the city of London for the week ending February 25th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations show only one deficiency in illuminating power, and that against the Gas-Light & Coke Co., the test being 15.9 instead of 16 candles. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.42	12.82	0.20	Nil.
South Metropolitan Gas Co.	6	16.50	9.33	0.48	Nil.
Commercial Gas Co.	2	16.60	7.4	0.05	Nil.

The supply during the week ending March 4th was not so good there being three deficiencies, two against the Gas Light & Coke Co., and one against the Commercial Gas Co. The results calculated as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.34	12.83	0.22	Nil.
South Metropolitan Gas Co.	6	16.40	9.58	0.50	Nil.
Commercial Gas Co.	2	16.25	9.05	0.25	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

Correspondence.

*. We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- J. M.—Please forward it to us.
 S. N. S. (Germany).—The matter has now been put in order.
 B. R. AND T. Co.—We trust it has reached you safely. It was a surprise to hear you had mislaid such an important number.
 C. AND B.—It has been sent. It was impossible to avoid the delay on account of the difficulty of obtaining that number.
 T. H. D. (Ohio).—(1) We shall be glad to hear further from you; (2) Why not give it a trial?
 G. D.—See this week's issue.
 C. H.—Copy safely to hand, for which we are obliged.
 B. AND P. AND Co.—Declined with thanks.
 S. S. AND G.—It will be forwarded in future as heretofore.

A PECULIARITY OF CORNISH SMOKE.

(To the Editor of the Chemical Trade Journal.)

SIR,—At the Bodmin Assize Courts last week, the learned counsel for the plaintiff Locke argued that because certain fields might be higher than the top of a stack, that smoke (provided it was injurious at a lower level) would have no effect at a higher level even if only a few feet above the stack, and the judge seemed to incline that way. I have been accustomed to smoke for over 40 years, and my experience has taught me that smoke, particularly in a clear, dry atmosphere, ascends. Also in strong winds smoke is forced on, and a few feet is not then of much consideration.—Yours, &c., ENQUIRER.

[The commencement of the case referred to, viz., Michell, Sampson, and Locke v. Caron Chemical Works, was reported last week, and the conclusion of the evidence will appear next week. Mr. W. J. Trythall, owner of the Caron Chemical Works, won his case, his success having caused much rejoicing in the locality, to which we add our congratulations.—ED. C. T. J.]

Trade Notes.

SOMERSET HOUSE LABORATORY.—We have it on very good authority that a very considerable change will shortly be made in the personnel of this laboratory. It is believed that Dr. James Bell will soon resign the post of chief chemist to the Department, and it is also rumoured that the superintendence of this laboratory has been offered to Prof. W. Noel Hartley, of Dublin. Should this prove to be true we may possibly see a great improvement in the conduct of this Government laboratory.

EXPORTS OF RUSSIAN PETROLEUM.—The exports of Russian oil from Batoum during January were 588,000 barrels, an increase over January last year of 135,000 barrels.

IMPORTS OF COPPER PYRITES.—During February this year 1,176 tons of copper pyrites were imported into this country, a decrease of 301 tons as compared with the same month in 1892.

TENDERS FOR TAR PLANT.—Tenders are invited by the St. Helens Corporation for the erection of a tar distilling plant which is to be put down at the gas works. Plans have been prepared by the gas manager, under the direction of the sub-committee, and application has been made to the Local Government Board for borrowing powers to obtain the sum to be expended.

PREPARATION OF SULPHITES.—An improved process for the preparation of acid sulphite solutions, in a pure state, has been patented by Messrs. Boake Roberts, of London. The process consists virtually in purifying the sulphurous acid by first compressing it to a liquid form, and then allowing it on a reduction of the pressure, to boil off gently into an alkaline solution, or milk of lime.

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—A general meeting of this section was held on Wednesday last in the Chemical Laboratory of the University College, Brownlow-street, at 7 o'clock p.m., to discuss the question of the "Revision of the Patent Law," and to nominate three gentlemen to serve on the committee appointed by the Council, to deal with this matter.

ANILINE LAKES.—A method of preparing compound lakes from aniline colours is the subject of a patent by I. Frankenburg, the idea being to precipitate aniline colours with combinations of alumina, chromium and alkaline earths, such as salts of barium and calcium. For instance, barium chloride is added to a mixture of an aniline dye and a solution of soda crystals, to which aluminium sulphate is then added, when a bright coloured lake is obtained which after filtration is dried and pulverised.

BLEACHING UNDER REDUCED PRESSURE.—A process for bleaching vegetable textile materials (which is patented) consists of placing the materials in the dry state in a vessel which can be exhausted. After the pressure is reduced to about one-tenth of an atmosphere, a solution of sodium hypo-chlorite of from 1.03 to 1.04 Sp. Gr. and lowered to a temperature of about 70° F. is then introduced into the vessel; the process is then reversed and the whole subjected to a pressure of several atmospheres for one to two hours, after which the contents are removed and further treated in the usual manner.

SOLIDIFIED AIR.—That Professor Dewar did not mean to stop at converting air into a liquid is very evident. He has now succeeded in freezing the liquid nitrogen and oxygen into a jelly-like mass. Whether the ice is genuine frozen air is a point which has yet to be determined. Since so far oxygen pure and simple has not been reduced to the form of a liquid there seems to be good cause to believe the prevalent opinion that the solid nitrogen contains liquid oxygen, the latter being retained mechanically in much the same way as rose water in cold cream. The result of Professor Dewar's experiments is, however, a most interesting one, and likely to lead to the establishment of useful data.

THE PRICE OF COPPER IN 1892.—The following figures give the highest and lowest prices which have ruled in 1892 for furnace material and copper bars (including G.M.B.'s):—

1892.	FURNACE MATERIAL.		CASH BARS AND G.M.B.'S.	
	Highest.	Lowest.	Highest.	Lowest.
January.....	9s. 6d.	to 7s. 9½d.	£47 7 6	to £44 10 0
February.....	9s. 6d.	„ 7s. 3d.	44 10 0	„ 43 7 6
March.....	9s. 6d.	„ 8s. 4½d.	47 15 0	„ 43 18 9
April.....	9s. 3d.	„ 7s. 6d.	46 7 6	„ 45 2 6
May.....	9s. 6d.	„ 7s. 9d.	47 10 0	„ 45 7 6
June.....	9s. 7½d.	„ 7s. 6d.	47 0 0	„ 44 16 3
July.....	9s. 4½d.	„ 7s. 10½d.	45 6 3	„ 44 10 0
August.....	9s. 3d.	„ 7s. 6d.	44 17 6	„ 44 1 3
September.....	9s. 1½d.	„ 7s. 6d.	44 10 0	„ 43 11 3
October.....	9s. 9d.	„ 7s. 10½d.	46 2 6	„ 44 7 6
November.....	10s. 1½d.	„ 8s. 3d.	48 0 0	„ 45 7 6
December.....	10s. 0d.	„ 8s. 6d.	47 17 6	„ 46 10 0

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol is quiet and 1s. 7d. for 90's, with 1s. 5d. for 50/90's are to-day's prices. Solvent naphtha stands at 1s. 2d., creosote at about $\frac{3}{4}$ d., and crude carbolic at about 2s. 2d. Pitch is firmer, and 26s. can now be obtained.

The sulphate of ammonia market is still in a very excited state. It is better, perhaps, to close our remarks with the fact that £12. 10s. can easily be obtained for March delivery, and that £12. 12s. 6d. has already been offered for April.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 40s. 9d. cash. Middlesbrough 34s. 3d. cash, and Hematite 45s. 9d. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 7s. 6d. to £45. 15s. cash, and £45. 16s. 3d. to £46. 3s. 9d. three months. Tin steady. Straits closed at £94. 15s. to £95. 5s. cash, and £93. 15s. to £94. 5s. three months. Australian, £95. 5s. cash. English ingots, £98. Lead, quiet; Spanish, £9. 17s. 6d. English, £10. to £10. 5s. Silesian spelter: Ordinary, £17. 15s. Nickel, 1s. 8½d. to 1s. 9d. Antimony, £41. 10s. Quicksilver: First hands, £6. 10c. second hands, £6. 9s. Copper shares quiet: Cape, 1½ to 1½. Copiapo, 2½ to 2½. Libiola, 3 to 3¼. Mason and Barry, 2½ to 2½; Rio Tinto, 15½ to 15½; Tharsis, 4½ to 4½; Namaqua, 1 to 1¼; Panulcillo, ½ to ½.

WOLVERHAMPTON, WEDNESDAY.—A rather better market to-day. Orders for finished iron more numerous, and some works more regularly employed. Marked bars, £7. 10s.; horseshoe iron, £7. 15s.; plating bars, £8.; branded hoops, £8 to £9. 10s.; angle and tee iron, £8.; best crown bars, £9.; best rivet and angle iron, £9 10s.; and double best rivet iron, £10. Pig iron buyers quiet; prices steady. Northampton foundry pigs 47s. 6d. to 50s., and Derbyshire forge 42s. to 43s. 6d. Coal firm.

GLASGOW, WEDNESDAY.—Market again easy, with good business. Scotch done at 40s. 9d. 40s. 9½d. and 40s. 9d. cash, also at 40s. 11d. one month; closing with buyers at 40s. 8½d. cash, and 40s. 10½d. one month; sellers ask ½d. more. Middlesbrough done at 34s. 5d. cash, also at 34s. 7½d. and 34s. 6½d. one month; closing with buyers at 34s. 3d. cash and 34s. 5d. one month; sellers ask 1d. more. Hematite closes with buyers at 45s. 9d. cash; sellers ask 46s.

REPORT ON MANURE MATERIAL.

There has been a better tone in the market throughout the week, prices of nitrogenous material continuing to harden, whilst those for phosphates are well maintained.

The nearest value of 75/80% Florida rock is 8d. per unit in cargoes c.i.f. to United Kingdom, and about ¼d. more to the Continent. Peace River rock continues to be quoted 7d. per unit, and hot air dried South Carolina 6½d.; but we do not hear of business at the prices, and less would have to be taken probably to induce important business.

Buyers have not followed the higher price asked for River Plate cargoes of bones, and £4. 2s. 6d. may be quoted as nearest value of anything near at hand. Crushed Kurrachee bones offer at £4. 1s. 3d. per ton ex ship Liverpool or Hull, for shipment, and on spot at £4. 2s. 6d. ex store. There has been more demand for Bombay bone meal, and sales have been made at £4. 3s. 9d. to £4. 5s. ex quay Liverpool, per steamer now due, and £4. 5s. is closing value. From store £4. 7s. 6d. to £4. 12s. 6d., according to quality, required. Common grinding bones are worth about £3. 15s. ex quay, in bulk. Nitrate of soda closes very firm and at an advance. On spot 10s. 1½d. now required for ordinary quality, and 10s. 3d. for fine. Afloat, arrived at port of call, 10s. paid for a large cargo, ordinary quality, and 10s. 1½d. now required in that position. Early January sailings are worth about 9s. 9d. per cwt., but late January may be had at 9s. 3d. or possibly at a shade less. The fine weather gives promise of an early

season, and should that promise be realised there seems to be a certain amount of actual scarcity of supplies between now and end of April.

Dried blood is still in good demand for export, and 12s. per unit double bags, f.o.b. Liverpool, may be quoted as present value of ground stuff of high test.

MISCELLANEOUS CHEMICAL MARKET.

The demand continues good for bleaching powder, main export account, and price remains firm at £8. 10s. nett f.o.b., at nett f.o.r. makers' works. In alkali generally, there has been little movement in prices, on the whole, trade is quiet and current quotations stand as for some time past, viz.: Caustic soda, 77%, f.o.b. £11. per ton; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; £8. 10s.; cream, 60%, £8. 5s., 10 ton lots and upwards. Soda 1½d. to 1¾d. per degree f.o.b. Ammonia alkali, 1½d. to 1¾d. degree. Chlorate of potash and soda are still in request with short supply, and prices are maintained at 9d. and 10d. respectively. Soda crystals are without alteration in price, but demand is small. Recovered sulphur is still quiet at £4. 2s. £4. 5s. per ton on rails. Sulphate of copper is without any movement, and price unchanged. In carbonate of potash price slightly lower at £17. 10s. to £17. 15s. for 90% c.i.f. Brown grey acetates of lime dull and without change in prices. Acetate of soda slightly easier. The demand for carbolic and cresylic acids some extent revived, and prices are firm with advancing tonnage. Carbolic crystals more enquired for. Aniline oil and salt have receded from expectations of last week, and prices are 7d. and 8d. per lb. respectively. Chloride of zinc still depressed, and in chemicals generally the demand is still unsatisfactory.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.—OILS.—Palm oil is quiet to dullness, there are no sales to-day. Olive is steady both as regards the price and market, but the business done is small, current quotations being £35. to £42. per tun according to quality. Linseed has declined still further, and to-day can be had at from 22s. to 22s. 6d. per cwt. in export casks. Rape: Stettin has a good sale at 29s. per cwt.; English refined, 27s. per cwt. seed: Liverpool refined was rather easy during the early part of the week, but still was quoted at 25s. 6d. to 26s.; to-day, however, quieter and prices range from 25s. to 26s. per cwt. Castor oil is steady at 2½d. to 2¾d. First pressure French is a shade easier at 2½d. to 2¾d. per lb. Tallow is in the same position as last week, regards market and stocks. Resin, common, is firm at 4s. per other grades fetch full prices. Spirits of turpentine have been 26s. during the week, but are to-day quieter at 25s. 9d. to 26s. cwt. on spot. Petroleum: American, 4¾d. to 6d. according to quality; Russian refined, 4½d. per gallon.

COLOURS steady. Ochres: Oxfordshire, common, £10. 10s. to £12. 10s., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 70s., second, 50s., and common, 18s.; Irish, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 70s.; Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £6. 15s.; Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 10s. 6d.; Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Crude, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

The market this week continues steady. Manganese: Arrivals small, and prices are unaltered. Borate, 7d. per lb.; sulphate, 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. steady. Magnesite (raw lump) quiet; raw ground £6. 10s., and £12. 10s. Bauxite (Irish Hill brand): Selling largely at full price, 20s., second 16s., third 12s. French chalk: Arrivals small and prices firm, both for "Angel White" brand and "Barytes": Carbonate, continues very scarce; nuts, 70s. to 80s. white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Irish, and Cumberland flat. Santander and manganiferous Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. 10s. Fullers' earth steady; best lump, 55s.; fine impalpable

£7; "Emerald" ground, 8os. Scheelite, wolfram, tungstate of soda, and tungsten metal is in strong demand, and prices are firm. Chrome ore, best qualities, are in good demand, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 5os. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 2os. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals generally are still quiet. Bleach in good demand at £8. 5s. per ton, prompt and forward. Sulphur in rather better enquiry. Soda crystals unaltered, price varies according to destination.

Bleaching powder, softs, £8. 5s. per ton nett; hard, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. 12s. 6d. per ton, 52%, £4. 16s. 3d. per ton, 56%, £5. per ton; alkali, 36%, £5 per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 10d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; in 5 ton lots, £28 10s.; hydrate of barium, £10. per ton net.

South Durham salt is still 8s. 6d. per ton, f.o.b. Tees.

Coals: Trade is rather better, and with improved prospects of shipping, prices are perhaps a shade firmer. Best Northumbrian steam coal, 8s. 6d. per ton; small steam, 3s. 3d. to 3s. 6d. per ton; best screened Durham bunkers, 8s. 6d. per ton; gas coals, 6s. 3d. to 6s. 6d. per ton; coke, quiet at 14s. per ton.

It is a source of satisfaction to be able to report that the Durham coalowners and miners came to an agreement yesterday about wages. The owners asked for a reduction of 10 per cent.—the great fall in prices and lessened demand, they said, justified that amount of reduction. The representatives of the miners offered to at once accept a reduction of 5 per cent., and rather than have any lengthened controversy, the owners agreed to the men's proposition temporarily.

THE COPPER MARKET.

Messrs Harrington and Co., in their fortnightly report dated Liverpool, March 2nd, 1893, state:—

Charters for the past fortnight not being to hand are estimated as 1,000 tons, against 2,000 tons for the previous fortnight, making 3,000 tons for the month. The total since 31st December is 4,000 tons. Same time last year the quantity was 3,950 tons. Exchange 15½d.

During the past fortnight about 9,000 tons of G.m.b.'s and G.o.b.'s have been sold at £45. 2s. 6d. to £45. 16s. 3d. for cash, and £45. 11s. 3d. to £46. 6s. 3d. for three months' prompt, market closing dull to-day at £45. 12s. 6d. and £46. 2s. 6d. respectively.

The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 2,422 tons for the fortnight, but with an increase of 585 tons for the previous fortnight, makes the total decrease of 1,837 tons for the month. The stocks include about 3,300 tons of copper sold, but not yet delivered to smelters.

The visible supply shows a decrease of 2,695 tons for the fortnight, but with an increase of 1,617 tons for the previous fortnight, makes a total decrease of 1,078 tons for the month. The total deliveries for the fortnight are 5,519 tons, which with 4,595 tons for the previous fortnight, makes a total of 10,114 tons for the month. The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 872 tons, against 1,039 tons on the 16th ult. The delivery in Liverpool and Swansea was 167 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts are firmer. Quotations being: Tough cake, £49. to £49. 10s.; best select, £50. to £50. 10s.;

Indian sheets, £53.; strong sheets, £57. to £58.; and yellow metal sheets, 4½d. to 5d. per lb.

The sales of furnace material comprise a cargo, per s. *Ranmoor* consisting of 2,250 tons Cape ore, of about 27 per cent., and 380 tons Cape regulus, of 40 per cent., to arrive, at Garston, on private terms; 15 tons English precipitate, at 9s. 3d.; 100 tons Spanish precipitate, to arrive, at Garston, at 9s. per unit; 900 tons Argentiferous Montana Matte, and 700 tons ordinary Montana Matte, on private terms.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia has been very scarce, and proving an exceedingly strong market for prompt. In certain special instances over £12. was demanded and got; but this extreme has not been at all common. The market is in a curious state, and even old hands find themselves nonplussed when they attempt to forecast. Most expected that the boom would have been exhausted by this time, but there are still no signs of that to-day, and the article may be quoted at £12. to £12. 2s. 6d. with safety—that is for prompt. There are no forward buyers.

Solid paraffins (scale and wax) are very strong, and there is a growing demand apparently. It is said that on the Continent wax is finding employment in an ever widening area. Holders here have felt warranted in slightly raising their prices, but that is a very ticklish procedure in face of the American importation which is already very large, and would be further swollen on very little provocation.

In general chemicals there is not the slightest improvement discernible, and prices are no more than maintained. Bleaching powder is still the exception, being very firm and scarce.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; saltcake, 28s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%; Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 9¼d., less 5% Liverpool; nitrate of soda, 10s. 1½d.; sulphate of ammonia, about £12. to £12 2s. 6d. f.o.b. Leith; salammmonic, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¼d., and soft 1¼d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 865°, £3. 10s. to £3. 15s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 50,159 bags.

New Companies.

G. Dobson, Ltd.—In referring to this company, last week, as acquiring the business formerly carried on by George Dobson and T. Webber, we were in error. The business having been formerly carried on by Mr. G. Dobson, alone. Mr. Webber only acts as trustee under the Companies Act, in the agreement between Mr. Dobson and the company. [Ed. C. T. J.]

G. and J. Rawstorn, Ltd.—CAPITAL £40,000. in shares of £10. each. This company has been formed to take over the business formerly carried on under the style of G. and J. Rawstorn, at Hull, and to trade as oil, turpentine, and resin merchants, manufacturers, brokers, etc. The subscribers to the memorandum of association are:—G. Rawstorn, 78—9, High Street, Hull, oil merchant; J. Rawstorn, 78—9, High Street, Hull, oil merchant; H. Rawstorn, Anlaby Road, Hull, married woman; J. C. Rawstorn, Llandudno, married woman; K. Rawstorn, Hull, spinster; S. G. Rawstorn, Hull, spinster; J. Powell, 31 and 45, Osborne Street, Hull, merchant.

Coal-Brick Company of the United Kingdom, Ltd.—CAPITAL £50,000. in shares of £1. each. This company has been formed to acquire from the Coal-Brick Syndicate, Ltd., the benefit of certain patents for the production of briquettes and to carry on the business of manufacturers of briquette machines, brick-makers, coal merchants, and metallurgists. The subscribers to the memorandum of association are:—E. F. Maryson, East Ham, clerk; E. Rogers, Leytonstone, clerk; R. Lamborn, Kilborn, clerk; J. Gaffney, Battersea, clerk; J. S. Loughton, Kentish Town, clerk; C. Lamborn, Victoria Embank-

ment, clerk; W. E. Parker, 38, Lexham Gardens, Kensington, W., gentleman.

Wolverhampton Corrugated Iron Co., Ltd.—CAPITAL £75,000. in £10. shares.—This company has been formed to take over the business of manufacturers of galvanized iron recently carried on at the Shruberry Steel Works, Wolverhampton, and the business of ironmasters, manufacturers, carried on at the Stour Side Works, Wolverhampton. The subscribers to the memorandum of association are:—J. Jones, Wolverhampton, manufacturer and ironmaster; J. Jones, Wolverhampton, manufacturer and ironmaster; J. Highfield, Wolverhampton, galvanized iron manufacturer; E. P. Jones, Wolverhampton, manufacturer; E. Farnworth, Wolverhampton, ironmaster; W. Jones, Wolverhampton, spinster; H. Jones, Wolverhampton, solicitor's articulated clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Freeing Copper from Arsenic. F. B. Stone. 4,251. Feb. 27th.
Waterproofing Leather. W. Becker. 4,274. Feb. 27th.
Improvements in the Manufacture of Indigo. H. H. Lake. 4,287. Feb. 27th.
Apparatus for Galvanizing Sheet Metal. J. V. Laguesse. 4,298. Feb. 27th.
Manufacture of Zinc Oxides. A. Gray. 4,310. Feb. 28th.
Improvements in Bag Filtering Apparatus. M. Blake and J. Barclay. 4,315. Feb. 28th.
Improvements in the Consumption of Smoke. D. France. 4,331. Feb. 28th.
Manufacture of Paints, Sulphuric and Sulphurous Acid from Proto-Sulphate of Iron. M. N. D'Andria. 4,342. Feb. 28th.
Centrifugal Hydro-Extractors. G. W. Elliott. 4,421. March 1st.
Smoke Consuming Stove. W. Chapman. 4,470. March 1st.
Extraction of Gold and Silver from their Ores. H. Parkes. 4,496. Mar. 1st.
Construction of Kilns for Burning Lime and other Minerals. A. Atkinson and A. G. Barrett. 4,563. March 2nd.
Improvements in the Manufacture of Soap Tablets. R. H. F. Finlay. 4,581. March 2nd.
Improvements in Soap. T. Nicholson. 4,586. March 2nd.
Improvements in Kilns for Burning Bricks, Tiles, etc. W. Eaves. 4,587. March 2nd.
The Production of Fast P. Amido-Diphenylamine Dye-Subs on the Fibre. S. Pitt. 4,612. March 2nd.
Production of Diamidonaphthalene-Sulpho Acid and Amidonaphthol-Sulpho Acid and Colouring Matters therefrom. S. Pitt. 4,613. Mar. 2nd.
Antiseptic Ice. G. A. Nussbaum. 4,649. March 3rd.
Evaporating Apparatus for obtaining Salt. C. A. Chappell. 4,669. March 3rd.
Soldering Aluminium. A. C. Fel. 4,677. March 3rd.
Electrolytic Production of Chlorate of Potash and Soda. J. A. Heap. 4,726. March 4th.
Artificial Marble. L. Nathan. 4,737. March 4th.
Direct Dyeing Colouring Matters. H. E. Newton. 4,756. March 4th.
New Colouring Matters. H. E. Newton. 4,757. March 4th.
Improvement in the Manufacture of Caustic Alkalies or Carbonated Alkalies. I. Lederer. 4,767. March 4th.
Manufacture of Linseed and other Compressed Feed Cakes for Cattle. J. Bibby. 4,782. March 4th.

GERMAN PATENTS for week ending MARCH 1st

Specially abstracted by Dr. H. Zerener, civil engineer, Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to answer queries from the Journal gratis.

- 12 A. 3,102. Preparation of Salol from Polysalicylide and Actiengesellschaft für Anilinfabrikation, Berlin, S.O.
12 F. 5,424. Preparation of 1-Phenyl-2 Methyl-5 Pyrazolone. vorm. Meister Lucius & Brüning, Höchst a/Maine.
13 L. 7,563. Drying and Superheating Steam. F. W. Lührmann.
22 C. 3,949. Preparation of Polyazo-dyes from Diazo-dyes (α₁ β₃ or α₁ β₄ -Naphthylamine-Sulphonic Acid. L. Cassella, Frankfurt, A/M.
22 F. 6,324. Preparation of Sulphonic Acids of Tetra-Alkyldiphenylmethane (addition to patent 67,434). Farbenfabriken v. Bayer & Co., Elberfeld.
22 F. 6,355. Preparation of Osazone of Ester of Dioxystart. Farbwerke vorm. Meister Lucius & Brüning, Höchst A/M.
22 R. 7,746. Red Substantive Diazo-dyes (addition to patent R. Rohner, Basel.
49 F. 6,366. Coating Iron Plates with Lead. Frankenthaler Kess. Velthuysen & Co., Frankenthal.
75 E. 3,576. Ammonia Distilling Apparatus. J. L. C. Eckelt.
8 F. 3,350. Scouring and Bleaching Cotton and other Fibre to patent 59,674). H. Thies, Laaken; C. B. Rittershausen and Mülhausen, 1/E.
12 R. 6,977. Preparation of P Methoxyphenyldimethylpyrazo. Riedel, Berlin, N.
22 C. 3,863. Preparation of α₁ α₄ -Amidonaphthol- β₂ β₃ Di. Acid. L. Cassella & Co., Frankfurt, A/M.
22 C. 4,348. Preparation of α₁ α₄ - Diamidonaphthalin- α₁ Sulphonic Acid. L. Cassella & Co., Frankfurt, A/M.
22 D. 5,397. Substantive Azodyes from Dioxypiphenylmet. Deeraud, Huguenin & Co., Hünningen, Elsass.
22 F. 6,223. Rosaniline Dyes from Tetra - alkyldiamidoben. with Benzyl-α-Naphthylamine. Farbenfabriken vorm. Frie and Co., Elberfeld.
38 H. 12,697. Steeping and Hardening Wood. E. S. Haskin, New York.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. F. GERARD and T. B. GERARD, under the style of Gerard Bros., N. soap boilers.
J. LEE, J. W. LEE and W. LEE, under the style of Isaac Lee and S. borough, Lancashire, oil and tallow refiners; as far as regards J. Lee.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

MARLOW, EDWARD, Handsworth, Staffordshire, late Birmingham, glass colour merchant's manager, late glass and colour merchant.
SCHONSTADT, MORITZ H., trading as Moritz H. Schonstadt, and a National Asbestos and Indiarubber Co., Farringdon-road, E.C., and ham, indiarubber and asbestos ingrant.

Adjudication.

POTTER, HERBERT SUTTON, Surrey, chemist.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 4th.

Acetic Acid—

Holland, 78 pkgs. Beresford & Co.
" 150 A. & M. Zimmermann

Acetone—

Holland, 6 pkgs. W. Stevens & Sons
" 1 A. & M. Zimmermann

Acid—

Germany, 10 pkgs. L. & I. D. Jt. Co.

Alkali—

France, 310 c. Arnati & Harrison

Alum—

Germany, 25 pkgs. H. Wallace & Co.
Holland, 11 Ohlenschlager Brs.

Alumina Sulphate—

Germany, 193 pkgs. Tough & Henderson

Antimony—

France, 39 cs. 4 cks. B. & F. Wf. Co., I.d.
Japan, 5 t. F. M. Jonas
A. Turkey, 50 French & Smith
France, 5 Vivian, Younger & Co.

Asbestos—

Holland, £377. Williams, Torrey & Co.
France, £370. Flageollet & Co.
U. States, £33. W. Byford

Barium Chloride—

Holland, 12 pkgs. H. Wallace & Co.

Barytes—

Belgium, 200 cks. 200 pkgs. Leach & Co.

Holland,

24 Pope & Co.
22 J. Owen
44 W. Harrison & Co.
200 cs. Cotton Powder Co.
Germany, 46 89 cks. W. Harrison & Co.
31 brls. T. Palmer
72 cks. W. Pope & Co.
Holland, 3 Beresford & Co.

Caoutchouc—

E. Indies, 50 c. Henderson Brs.
" 125 Prop. Bull Wf.
Portugal, 16 L. & I. D. Jt. Co.
Carthage, 30 Prop. Bull Wf.
E. Indies, 25 Kleinwort, Sons & Co.
Zanzibar, 8 Lewis & Peat
Aden, 12 Clarke & Smith
Rangoon, 100 L. & I. D. Jt. Co.
France, 62 Stiebel Brs.
Rangoon, 4 R. Gray
Germany, 31 Wallace Brs.

Castor Oil—

E. Indies, 10 cs. W
Belgium, 30 brls. Berr

Caustic Potash—

France, 10 drs. Spies B

Caustic Soda—

Holland, 45 c. Deering &

Chemicals (otherwise und)

Germany, 40 pkgs.
" 101 A. & M. Zin
" 700 A. Hui
" 8 Anders
Holland, 1 Phillips
Germany, 1 J. Ba
U. States, 39 Hughes, C

Cream of Tartar—

France,	2 pkgs.	S. Hanson, Son & Co.
"	7	B. & F. Wf. Co., Ltd.
"	6	E. W. Carling & Co.
"	5	M. Ashby, Ltd.
Holland,	34	Middleton & Co.
France,	9	C. F. Gerhardt
"	11	Macanochi Birs.
Spain,	13	W. C. Bacon & Co.
Italy,	3	J. Knill & Co.

Dextrine—

Germany,	100 pkgs.	J. Anderson & Co.
Holland,	50	Hernu, Peron & Co.
"	35	J. Parlevliet
"	40	J. Barber & Co.
"	40	T. H. Lee

Dyestuffs—

Annatto		
France,	2 pkgs.	R. J. Fullwood & Co.
Aniline		
Germany,	1 pkge.	H. Lambert
Cutch		
Rangoon,	2,607 pkgs.	Leach & Co.
"	200	Elkan & Co.
"	1,610	A. Howden & Co.
"	265	Kleinwort, Sons & Co.
"	388	Perkins & Homer
"	500	Phillipps & Graves
"	1,000	J. & G. Bulloch & Co.
"	2,300	L. & I. D. Jt. Co.

Extracts

France,	135 pkgs.	L. J. Levinstein & Sons
Holland,	10	J. Owen
Germany,	2	L. & I. D. Jt. Co.
Denmark,	1,198	A. F. White & Co.
France,	15	B. & F. Wf. Co., Ltd.
"	1	Skillbeck Birs.
Belgium,	25	Leach & Co.
"	11	T. H. Lee

Gambier

E. Indies,	275 pkgs.	S. Barrow & Bro., Ltd.
"	1,351	Beresford & Co.
"	1,507	L. & I. D. Jt. Co.
"	175	A. & W. Nesbitt
"	257	Adamson, Gilfillan & Co.
"	450	E. Boustead & Co.
"	442	Brinkmann & Co.

Gramilla

Camrre,	7 pkgs.	Kuhner, Henderson & Co.
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Indigo

E. Indies,	108 chts.	Arbuthnot, Latham, & Co.
"	33	Parsons & Keith
"	2	H. W. Jewsbury & Co.
"	27	Benecke, Souchay & Co.
"	108	Stansbury & Co.
"	44	F. W. Heilgers & Co.
"	20	Phillipps & Graves
"	97	Elkan & Co.
"	92	R. Von Glehn & Sons
"	2	Walker, Munzie & Co.
"	112	Parry & Co.
"	22	W. Brandts, Son & Co.
"	8	Fruhling & Goschen
"	7	H. J. Perlbach & Co.
"	80	Ross & Deering
"	10	J. Owen
"	472	L. & I. D. Jt. Co.
"	127	Patry & Pasteur, Ltd.
"	29	Wallace Birs.
"	25	Hatton, Hall & Co.
"	20	F. Huth & Co.
"	99	E. Rutherford

Myrabolams

E. Indies,	724 pkgs.	Clarke & Smith
"	1,060	A. Hagan
"	474	L. & I. D. Jt. Co.

Orchella

Ceylon,	4 pkgs.	Anderson, Weber & Smith
Zanzibar,	137	Lewis & Peat
"	77	Prop. Bull Wf.

Safflower

E. Indies,	11 pkgs.	Brown & Elmslie
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Sunac

Italy,	150 pkgs.	Sollas & Sons
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Turmeric

China,	200 pkgs.	E. H. Cousins & Co.
Cochin,	223	L. & I. D. Jt. Co.
Valonia		
A. Turkey,	54 t.	F. Huth & Co.
"	97	A. & W. Nesbitt
"	112	Adam Birs.
"	80	Hicks, Nash & Co.
"	50	Beresford
"	50	Boucher, Mortimore & Co.
Chuluk,	44 t.	G. & H. Green

Dyestuffs (otherwise undescribed)

France,	35 pkgs.	Skillbeck Birs.
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Farina—

Holland,	50 pkgs.	Hicks, Nash & Co.
Belgium,	400	T. H. Lee
Holland,	100	J. Knill & Co.
"	50	G. Hornzee
"	50	H. Lorenz
France,	200	J. Anderson & Co.
Germany,	2	Hernu, Peron & Co.
"	425	J. Anderson & Co.
"	1,730	Horne & Co.
"	325	Seaward Birs.
Holland,	10	H. Lambert
"	621	J. Forsey

Glucose—

U. States,	600 pkgs.	2,363 c. R. G. Hall & Co.
"	50	300 c. L. & I. D. Jt. Co.
"	250	250 Trier, Meyer & Co.
Germany,	100	100 J. Barber & Co.
U. States,	100	560 Proprs. Scott's Wf.
"	2,049	2,300 Union Light- erage Co.
"	150	840 Fellows,
"	300	1,650 Morton & Co.
"	175	1,053 H.W. Peabody & Co.
"	200	1,100 Page, Son & East
"	170	935 Chmbln.'s Wf.
"	100	611 T. M. Duché & Sons
"	350	1,370 Fuerst Birs.
"	750	1,370 L. Sutro & Co.
"	750	3,261 R. G. Hall & Co.
Holland,	50	50 Proprs. Sun. Wf.

Iodine—

Chili,	57 pkgs.	A. Gibbs & Sons
Germany,	57	"

Lead Acetate—

Germany,	64 pkgs.	F. Boehm
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Manganese—

Japan,	40 t.	Union Lighterage Co., Ltd.
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Manure—

Germany,	20 t.	F. W. Berk & Co., Ltd.
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Methyl Alcohol—

Germany,	21 pkgs.	Stein Birs.
Holland,	1 dm.	"
Belgium,	19	"

Mica—

Rangoon,	410.	W. M. Smith & Sons
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Ochre—

France,	125 cks.	J. L. Lyon & Co.
"	9	C. F. Gerhardt
"	184 pkgs.	W. Harrison & Co.
Holland,	0 cs.	Phillipps & Graves
France,	15 brls.	Williams, Torrey & Co.
"	9 cks.	L. & I. D. Jt. Co.

Painters' Colours—

Germany,	33 pkgs.	T. H. Lee
E. Indies,	4	H. Gluck & Co.
Holland,	11	W. Harrison & Co.
Germany,	12	L. & I. D. Jt. Co.
France,	13	Hernu, Peron & Co.
Belgium,	35	T. Palmer
Hong Kong,	39	Sawer, Sons & Oakley
Germany,	2 cks.	T. H. Lee
"	1 cs.	A. G. Soutter & Co.
"	3 pkgs.	Phillipps & Graves
France,	20	Flageollet & Co.
Germany,	30	Burrell & Co.
"	20 cks.	G. Steinhoff

Paraffin Wax—

Rangoon,	1,437 brls.	H. Hill & Sons
U. States,	5 cks.	T. Christy & Co.
"	925	J. H. Usmar & Co.

Phosphate Rock—

B. W. I.,	1,500 t.	Anglo Contl. G. Wks.
U. States,	2,050	Wyllie & Gordon
"	1,083	Cloid, Routledge, & Co.
France,	135	A. Hunter & Co.

Pitch—

France,	175 cks.	H. Hill & Sons
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Plumbago—

Ceylon,	369 pkgs.	55 brls. Marshall & French
"	209 brls.	Prop. Sun Wf.
Germany,	3 cks.	T. H. Lee
Holland,	12	B. Gallaway
Ceylon,	194	J. Thredder, Sons, & Co.
"	860	E. Barber & Co.
"	396	R. G. Hall & Co.
"	185	Beresford & Co.

Potassium Bicarbonate—

Germany,	40 c.	A. & M. Zimmermann
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Potassium Carbonate—

France,	50 c.	J. A. Reid
"	320	L. & I. D. Jt. Co.
"	30	Spies Bros. & Co.
Holland,	200	Charles & Fox
"	400	Spies Bros. & Co.

Potassium Chloride—

Germany,	508 pkgs.	Anglo Contl. G. Wks.
Holland,	24 cks.	H. Johnson & Sons

Potassium Oxalate—

Norway,	47 pkgs.	F. Boehm
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Potassium Permanganate—

Germany,	30 pkgs.	Spies Bros. & Co.
Holland,	40	F. Boehm
Germany,	10	H. Lorenz

Potassium Sulphate—

France,	450 pkgs.	F. W. Berk & Co.
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Quicksilver—

Italy,	500 btl.	L. & I. D. Jt. Co.
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Rosin—

France,	3 brls.	J. Watt & Son
U. States,	4,357	Moore & Hole

Saltpetre—

E. Indies,	505 bgs.	Lucas & Spencers Wf.
"	1,322	L. & I. D. Jt. Co.
Chili,	10,491	W. Montgomery & Co.
Germany,	50 kgs.	70 cks. P. Hecker & Co.

Sodium Acetate—

France,	9 pkgs.	S. F. Waters & Co.
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Sodium Hyposulphite—

Germany,	1 pkg.	Soundy & Son,
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Stearine—

France,	25 cks.	J. Goddard & Co.
Holland,	116 bgs.	H. Hill & Sons
"	32	Robinson, Roberts, & Co.

Sulphur—

Italy,	5 t.	M. D. Co.
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Tallow—

Queensland,	43 cks.	Beresford & Co.
Germany,	2	Roth, Schmidt, & Co.
Singapore,	1,556 tins.	Kaltenbach & Schmitz
Queensland,	270	Aust. Meat Co.
Germany,	1	T. Christy & Co.
Queensland,	4	J. D. Keemer & Co.

Tallow and Stearine—

France,	1 cs.	Williams, Torrey, & Co.
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Tartaric Acid—

Holland,	10 pkgs.	Middleton & Co.
France,	8	B. & F. Wf. Co., Ltd.
"	64	"
Italy,	40	J. Knill & Co.

Turpentine—

Germany,	2 brls.	H. Lambert
France,	1 ck.	Grosscurth & Luboldt
N. Zealand,	500	Fairclough, Dodd, & Jones

Ultramarine—

Belgium,	20 cks.	H. Kohnstamm
Holland,	24	24 pkgs. Thames S. T. & L. Co., Ltd.
Germany,	52	G. Steinhoff
Holland,	9 cs.	J. Kitchin, Ltd.
"		Haefner, Hilpert, & Co.

Yarnish—

France,	23 pkgs.	Flageollet & Co.
Belgium,	1	Stobbs, Wilson, & Co.
U. States,	11	Pinchin, Johnson, & Co.

White Lead—

Holland,	39 cks.	Elkan & Co.
"	20	Burrell & Co.
"	7	A. & M. Zimmermann
Germany,	38	M. Ashby, Ltd.
"	10	Randall Bros.
"	26	W. Taylor, junr., & Co.
"	26	Spies Bros. & Co.
France,	10	26 cs. S. H. Willoughby J. Watt & Sons

Zinc Oxide—

U. States,	100 brls.	M. Ashby, Ltd.
Holland,	6 cks.	J. Owen
Germany,	4	H. Lambert
Holland,	95	Beresford & Co.
"		M. Ashby, Ltd.

LIVERPOOL.

Week ending March 2nd.

Acetic Acid—

Antwerp,	20 pkgs.	J. T. Fletcher & Co.
Rotterdam,	8 baks.	"

Acids—

In transit,	2 cs.	Cunard S. S. Co., Ltd.
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Ammonium Carbonate—

Hamburg,	8 bgs.	"
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Ammonium Sulphate—

Rotterdam,	8 cks.	"
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Antimony—

Mollendo,	133 bgs.	J. Fuzald
Antofagasta,	441	Brownell & Co.
New Orleans,	253 sks.	F. Smith

Barilla—

Valparaiso,	377 bgs.	Brownhill & Co.
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Barytes—

Antwerp,	27 cks.	"
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Boracic Acid—

Hamburg,	3 cks.	"
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Boracite—

Panderma,	300 t.	"
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Castor Oil—

Calcutta,	1,500 cs.	Ralli Bros.
"	250	D. Sassoon & Co.
"	150	"

Caustic Potash—

Dunkirk,	34 dms.	"
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Chemicals (otherwise undescribed)

Rotterdam,	23 cks.	"
Antwerp,	4	"

Colours—

New York,	12 pkgs.	"</
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Extracts			
Halifax,	520 cks.	Boucher, Bacon & Co.	
Antwerp,	3 brls.	J. T. Fletcher & Co.	
Marseilles,	8 cks. 42 brls.		
Bordeaux,	149 cks.		
New York,	38 kgs.	De Clermont & Donner	
Fuime,	542 brls.	Boucher, Bacon & Co.	
"	500 brls.		
Fustic			
Jamaica,	43 t.		
Indigo			
Bombay,	12 cs.		
Madder			
Rotterdam,	1 ck.		
Myrabolams			
Bombay,	2,042 bgs.		
Calcutta,	1,031.		
Sumac			
Bordeaux,	100 bls.		
Palermo,	560	600 bgs.	A. Ruffer & Sons
Barcelona,	100 bgs.		
Farina			
Fuime,	100 bgs.	C. J. Vander,	
"	100	Veen & Co	
"	100	Baumann & Co.	
"	300	G. F. Gaddum & Co.	
Glucose			
New York,	575 brls.		
Iodine			
Valparaiso,	13 kgs.	A. Gibbs & Son	
Lead Acetate			
Rotterdam,	55 cks.		
Limestone			
Rouen,	1 crt.		
Antwerp,	2 pkgs. 5 crts	J. T. Fletcher & Co.	
Litharge			
Rotterdam,	27 cks.		
Manganese Ore			
Carthage,	1,900 t.		
Marseilles,	10		
Rotterdam,	2 cks.		
Mineral White			
Genoa,	20 bgs.	Manchester S. C. Co.	
Trieste,	200	F. Parisi	
"	200		
Naphtha			
New York,	7,650 brls.		
Ochre			
Rotterdam,	50 bgs.		
Marseilles,	9 cks.		
Paint			
Hamburg,	1 ck.		
Boston,	12 cs.		
Phosphate			
Ghent,	1,000 bgs.		
Plumbago			
Hamburg,	66 cks.		
Genoa,	200 bgs.	G. Huntriass & Co	
"	80		
Colombo,	24 brls.		
Potash			
New York,	100 kgs.		
Portland,	5 brls.	H. Moore & Co.	
Rotterdam,	30 cks.		
Prussiate Soda			
Antwerp,	2 brls.		
Pyrites			
Huelva,	1,464 t.	Tennants & Co.	
"	1,976	A. Matheson & Co.	
Rosin			
New York,	400 brls.		
Saltpetre			
Hamburg,	23 brls. 20 kgs.		
In transit,	126	12 cks.	
Calcutta,	446 bgs		
Soap			
Beyrout,	4 pkgs.	S. Ghitz	
St. Nazaire,	1 cs		
Antwerp,	5		
New York,	25	T. M. Mullian & Co.	
Marseilles,	100 bxs	3 cs.	
Soapstone			
Genoa,	800 bgs.	W. Harrison & Co.	
Stearine			
Antwerp,	69 bgs.		
Sulphur			
In transit,	33 brls.		
Talc			
Bordeaux,	50 sks		

Tallow			
New York,	20 tcs.	Bell, Sons & Co.	
B. Ayres,	150 cks.		
Tartar			
Bordeaux,	5 cks.		
Tin Oxalate			
Rotterdam,	cs.		
Ultramarine			
Trieste,	cs.		
Rotterdam,	42	4 cks.	
Waste Salt			
Hamburg,	100 bgs.	150 t.	
White Lead			
Antwerp,	7 cks.		
Trieste,	2 cs.	Mander Bros.	
Rotterdam,	64 cks.		
Zinc Ashes			
B. Ayres,	180 bgs.	Leister, Bock & Co.	
Antwerp,	12 cks.	J. T. Fletcher & Co.	
Zinc Oxide			
Rotterdam,	90 cks.		
Antwerp,	20 brls.		
Zinc White			
Rotterdam,	50 cks.	O. & H. Marcus	

HULL.

Week ending March 4th.

Acetic Acid			
Rotterdam,	5 crbys.	W. & C. L. Ringrose	
Alkali			
Bremen,	3 cs.	Veltmann & Co.	
Flushing,	4 cks.	Wilson, Sons & Co., Ld.	
Alum			
Rotterdam,	203 cks.	W. & C. L. Ringrose	
Barytes			
Antwerp,	50 bgs.	Bailey & Leetham	
Bremen,	23 cks.	Veltmann & Co.	
"	103 bgs.		
Chemicals (otherwise undescribed)			
Bremen,	1 cs.	Veltmann & Co.	
Dunkirk,	71 pks.	Wilson, Sons & Co., Ld.	
Antwerp,	17	30 dms. 3 cks.	
Colours			
Rotterdam,	3 pks.	G. Lawson & Sons	
Antwerp,	5 cks.	Bailey & Leetham	
Rotterdam,	3	81 pks. W. & C. L. Ringrose	
Bremen,	1 cs.	Veltmann & Co.	
Ghent,	16 cks.		
Hamburg,	20 cs.	G. Malcolm & Son	
Flushing,	16	179 cks. Wilson, Sons & Co., Ld.	
Rotterdam,	1	Hutchinson & Son	
Cottonseed Oil			
Rotterdam,	3 cks.	Hutchinson & Son	
Dyestuffs			
Alizarine			
Rotterdam,	66 pks.	W. & C. L. Ringrose	
Flushing,	59 cks.	Wilson, Sons & Co., Ld.	
Madder			
Rotterdam,	2 cks.	Hutchinson & Son	
Valonia			
Smyrna,	330 t.		
Farina			
Harlingen,	1,500 bgs.		
Ghent,	252 cs.	Wilson, Sons & Co., Ld.	
Dunkirk,	50 bgs.		
Glucose			
Dunkirk,	97 pks.	Wilson, Sons & Co., Ld.	
Iron Oxide			
Rotterdam,	1 ck.	W. & C. L. Ringrose	
Litharge			
Rotterdam,	4 cks.	Hutchinson & Son	
Ochre			
Rouen,	60 cks.		
Phosphate			
Antwerp,	A quantity.		
Ghent,	80 t. 204 bgs.		
Antwerp,	10	Wilson, Sons & Co., Ld.	
Phosphorus			
Dunkirk,	7 cs.	Wilson, Sons & Co., Ld.	
Potash			
Dunkirk,	30 cks.	Wilson, Sons & Co., Ld.	

Rosin			
Bordeaux,	8 cks.	Rawson & Robinson	
Saltpetre			
Hamburg,	3 cks.	G. Lawson & Sons	
Soda			
Amsterdam,	11 cks.	W. & C. L. Ringrose	
Stearine			
Antwerp,	48 bgs.	Wilson, Sons & Co., Ld.	
Tallow			
Drontheim,	4 cks.		
Antwerp,	125 pkgs.		
Tartar			
Bordeaux,	5 cks.		
Tartaric Acid			
Rotterdam,	4 cks.	Hutchinson & Son	
"	1	W. & C. L. Ringrose	
Turpentine			
Bordeaux,	6 cks.	Rawson & Robinson	
Ultramarine			
Rotterdam,	5 cs.	J. Pyefinch & Co.	
Waste Salt			
Hamburg,	203 bgs.	G. Lawson & Sons	
White Lead			
Rotterdam,	30 cks.	W. & C. L. Ringrose	
Bremen,	31		
Rotterdam,	62	Hutchinson & Son	
Zinc Oxide			
Rotterdam,	62 brls.	Hutchinson & Son	

GLASGOW.

Week ending March 9th.

Acetone			
Rotterdam,	1 tin.	J. Rankine & Son	
Alum			
Hamburg,	98 cks.		
Arachide Oil			
Rotterdam,	3 cks.	J. Rankine & Son	
Barium Sulphate			
Antwerp,	350 bgs.	55 cks.	
Barytes			
Rotterdam,	92 cks.		
Bone Meal			
Bombay,	4,193 bgs.		
Caoutchouc			
Rouen,	1 cs.		
Chemicals (otherwise undescribed)			
Hamburg,	100 cs.	38 cks.	
Colours			
Amsterdam,	1 cs.		
Rotterdam,	2 cks.		
Dyestuffs			
Alizarine			
Rotterdam,	61 brls.	J. Rankine & Son	
Extracts			
Baltimore,	40 brls.	J. Dawson & Co.	
Glucose			
New York,	250 brls.		
Lead Acetate			
Hamburg,	12 cks.		
Ochre			
Rouen,	38 cks.		
Pitch			
Antwerp,	10 cks.		
Potassium Cyanide			
Antwerp,	50 cs.		
Pyrites			
Huelva,	2,175 t.	Tharsis Sulphur and Copper Co., Ld.	
Rosin			
N. York,	1,207 brls.	J. Parker	
"	400	Rowley & Dick	
Baltimore,	1,000	W. T. Geddes	
"	885		
Sodium Acetate			
Antwerp,	18 cks.		
Ultramarine			
Hamburg,	5 cks.		
Varnish			
Boston,	3 brls.		
Waste Salt			
Hamburg,	401 cks.		
White Lead			
Rotterdam,	56 cks.		
Zinc Ashes			
Antwerp,	8 cks.		
Zinc Oxide			
Antwerp,	30 cks.		
Rotterdam,	35		
Zinc White			
Rotterdam,	50 cks.		

TYNE.

Week ending March

Alum Earth			
Hamburg,	18 cks.		
Barytes			
Rotterdam,	15 cks.	Tyn	
Antwerp,	62		
Cellulose			
Rotterdam,	160 bales.	Tyn	
Colours			
Rotterdam,	1 ck.	Tyn	
Antwerp,	3 kgs.		
Cryolite			
Elsinore,	52 cks.		
Limestone			
Antwerp,	2 blks.	Tyn	
Manganese			
Rotterdam,	4 cks.	Tyn	
Saltpetre			
Hamburg,	3 cks.	Tyne	
Sulphur Ore			
Huelva,	426 c.		
Ultramarine			
Rotterdam,	4 cks.	Tyne	
Valonia			
Smyrna,	520 bgs.		
White Lead			
Antwerp,	30 brls.	Tyne	
Zinc Oxide			
Antwerp,	35 brls.	Tyne	

GOOLE.

Week ending February

Alizarine			
Rotterdam,	201 pks	3 brls.	
Alum			
Rotterdam,	135 cks.		
Barytes			
Rotterdam,	11 cks.		
Caoutchouc			
Boulogne,	2 cks.		
Dyestuffs			
Logwood			
Jamaica,	672 t.		
Madder			
Rotterdam,	1 ck. 1 bx.		
Dyestuffs (otherwise unkn)			
Ghent,	3 cks. 2 cs.		
Boulogne,	8	2 11 pks	
Farina			
Hamburg,	320 bgs.		
Delfsyzl,	3,193		
Glucose			
Calais,	200 bgs.		
Hamburg,	10 cks.		
Glycerine			
Rotterdam,	2 dms.		
Lead Acetate			
Hamburg,	32 cks.		
Potash			
Rotterdam,	10 cks.		
Calais,		77 dms.	
Dunkirk,		96	
Hamburg,	13		
Rosin			
Brunswick,	3,842 cks.		
Saltpetre			
Rotterdam,	100 bgs.		
Hamburg,	3 cks.		
Tartar			
Rotterdam,	7 cks.		
Waste Salt			
Hamburg,	249 t.		
Rouen,	7 cks.		
GRIMSBY			
Week ending February			
Caoutchouc			
Hamburg,	2 cs.		
Chemicals (otherwise un)			
Antwerp,	3 cks.		
Rotterdam,	24 pks.		
Dyestuffs (otherwise un)			
Dieppe,	41 cks.		

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.				LIVERPOOL.			
Week ending March 8th.				Week ending March 8th.			
Alkali—				Alkali Waste—			
Melbourne,	8 t. 6 c.	£126		Bombay,	11 t. 6 c.	£34	
Auckland,	10	79		Alum—			
Alum—				Santos,	1 t.	£6	
Mogador,	4 t. 19 c.	£28		Syria,	2 15 c.	14	
Robot,	1 19	19		Larnaca,	1 3	6	
Ammonia (Liquid)—				Patras,	6	2	
Rangoon,	3 cs.	£17		Ammonia (Liquid)—			
Colombo,	6	50		Savanna,	1 c. 2 q.	£5	
Brisbane,	1 t.	37		Ammonium Carbonate—			
Ammonium Carbonate—				M. Video,	2 t. 2 c.	£74	
New York,	50 cks.	£399		Bahia,	2	6	
Bordeaux,	11 c.	14		Ammonium Chloride—			
Melbourne,	15	22		Irbaill,	3 c.	£5	
Paris,	3 t. 18	111		Antwerp,	1 t. 19 2 q.	73	
Libau,	10 kgs	15		Bombay,	1 16	58	
Odessa,	2 12	65		Ammonium Sulphate—			
Ammonium Chloride—				Rotterdam,	11 t. 16 c. 2 q.	£112	
Rio de Janeiro,	1 t.	£35		Barcelona,	48 6	482	
Paris,	2	70		Demerara,	40 6 1	404	
Libau,	2 brls.	15		Venice,	10 10 1	120	
Ammonium Sulphate—				Nantes,	10 2	103	
Osund,	61 t. 2 c.	£634		Valencia,	45 3 2	460	
Antwerp,	200	2,175		Baltimore,	150 1	1,502	
Ghent,	350 7	3,800		Hamburg,	60 18 2	634	
Martinique,	180	1,944		Ghent,	106 16	1,538	
Hamburg,	300	3,180		St. Nazaire,	25 7	278	
Barbadoes,	5 2	575		New York,	706 11 1	9,620	
Marcellus,	50	525		Las Palmas,	25 12	282	
Bremen,	19	200		Arsenic—			
Dunkirk,	27 10	290		B. Ayres,	10 c.	£7	
Rotterdam,	101 9	1,041		Asbestos—			
Arsenic—				Calcutta,	1 cs. 1 ble.		
Amsterdam,	1 t. 2 c.	£15		Maranham,	1		
Lytelton,	2	24		Barium Chloride—			
Wellington,	2	32		Messina,	6 c.	£28	
Napier,	1 5	20		Bleaching Powder—			
Barium Nitrate—				Baltimore,	382 cks.		
Bombay,	1 t. 2 c.	£25		Bombay,	23 cs. 20 dms.		
Bleaching Powder—				Boston,	818		
Melbourne,	3 t.	£41		Constantinople,	52		
Borax—				Genoa,	8		
Libon,	10 c.	£14		Napanea,	14		
Mauritius,	3	17		Rouen,	18		
Algoa Bay,	10 kgs.	6		Hamburg,	85		
Carbolic Acid—				New York,	383		
Genoa,	5 cs.	£23		Piræus,	2		
Hamburg,	25 cks.	58		St. Louis,	31		
Rotterdam,	10 t.	469		Boric Acid—			
Lytelton,	10	50		New York,	5 t. 1 c. 1 q.	£205	
Caustic Soda—				Borax—			
Delagoa Bay,	2 c.	£6		Alexandria,	12 c. 1 q.	£19	
Brisbane,	6 t.	69		Rotterdam,	1 t. 1	32	
Zanzibar,	1 8	15		Cadiz,	13 1	27	
Cape Town,	12	7		Rio de Janeiro,	3 1	5	
Lytelton,	10 8	101		Cienfuegos,	11 3	18	
Melbourne,	20	195		Galatz,	3	5	
Chemicals (otherwise undescribed)				Calcium Chloride—			
Bombay,	6 cs.	£71		Shanghai,	5 t. 4 c.	£54	
Cape Town,	3	13		Boston,	50 1	96	
E. London,	4	19		Bahia,	2 1	5	
Shanghai,	4	29		Carbolic Acid—			
Natal,	3	10		Antwerp,	2 t. 4 c.	£46	
Citric Acid—				N. York,	5 cks. 5 19 3 q.	569	
Hamburg,	2 cks. 16 kgs.	£204		Baltimore,	23 cs.	128	
Rosario,	10 c.	80		Hamburg,	3 18	88	
Canada,	25	200		Rotterdam,	7 10	500	
Odessa,	10	82		Higo,	1 1 3	59	
Pt. Elizabeth,	1 cs.	8		Castor Oil—			
Cape Town,	1	6		Gibraltar,	2 brls.		
Libau,	1	160		Lagos,	6 cs.		
Bombay,	1 c.	10		Caustic Potash—			
Coal Products—				St. Louis,	1 t. 15 c. 2 q.	£46	
Anilime	34 cks.	£225		Chicago,	2 2	48	
New York,	1 cs.	13		San Sebastian,	4 3 3	83	
Sydney,	1 cs.	13		Caustic Soda—			
Anilime Oil	12 drs.	£375		Bahia,	51 dms.		
Rotterdam,	2 pns.	68		Calcutta,	20		
Dunkirk,	2 pns.	68		Havana,	20		
Napier,	4 cks.	£30		Libon,	30		
Anthracene				Malmö,	12		
Dusseldorf,	117 cks.	£739		M. Video,	50		
Rotterdam,	60	260		New York,	1,020	30 bxs 50 brls.	
Benzol				Piræus,	32		
Calais,	90 cks.	£523		Puerto Cabello,	8		
Rotterdam,	98 20 pns.	502		Rosario,	20		
Boulogne,	73	194		Samarang,	40		
Coal Tar Dyes							
Yokohama,	10 cs.	£124					
Cresosote							
Ghent,	23,294 glns.	£221					
Huelva,	3,931 brls.	1,376					
Naphtha							
Treport,	26 brls.	£65					
Naphthalene							
Treport,	10 cks.	£9					
New York,	88	122					
Copenhagen,	7	10					
Antwerp,	22	41					
Paraffin Wax							
Hobart,	5 tks.	£182					
Pitch							
Alexandria,	300 brls.	£96					
Dunkirk,	941 t.	1,405					
New York,	1,980 bgs.	365					
Rangoon,	50 cks.	20					
Philadelphia,	525	95					
Mauritius,	30 brls.	12					
Tar							
Tulcha,	200 cks.	£150					
Boulogne,	13 pkgs.	24					
Tur Oil							
Paris,	32 cks.	£40					
Treport,	25	13					
Copper Sulphate—							
Amsterdam,	1 t. 1 c.	£17					
Venice,	137 10	2,200					
Suez,	1 1	19					
Libon,	12	191					
Bordeaux,	53 7	741					
Cream of Tartar—							
Auckland,	5 c.	£22					
Algoa Bay,	2	11					
Melbourne,	1 t.	80					
Lytelton,	1 10	115					
Disinfectants—							
Calcutta,	65 pkgs.	£55					
Cape Town,	90 drs.	44					
Penang,	100	35					
Paris,	22 cks.	70					
Malta,	4 pkgs. 12 drs	33					
Vigo,	3 cs.	12					
Hamburg,	25	125					
Flowers of Sulphur—							
E. London,	3 t. 13 c.	£38					
Canterbury,	10	4					
Guanine							
Guadeloupe,	50 t.	£550					
Mauritius,	50	247					
Landerneau,	226	2,260					
Lead Acetate—							
Galatz,	1 t. 11 c.	£47					
Manure—							
New York,	99 t. 16 c.	£550					
Caen,	120 10	330					
Cherbourg,	140	380					
Madeira,	64 1	576					
Guadeloupe,	338 18	3,050					
Martinique,	65 15	345					
Gothenburg,	224 3	692					
Grenada,	2	19					
Rouen,	137	605					
Sydney,	2 1	456					
Havre,	40	200					
Treguier,	96 4	750					
Treport,	25 1	185					
Hamburg,	196 11	637					
Mauritius,	25 1	100					
St. Lucia,	52 10	354					
Guernsey,	3 10	31					
Amsterdam,	13 10	38					
Bordeaux,	135 16	540					
Jersey,	91 15	635					
Nitric Acid—							
Hong Kong,	11 c.	£21					
Jersey,	24 clys.	45					
Oxalic Acid—							
Dunkirk,	4 t.	£98					
Phosphorus—							
Dunedin,	8 c.	£100					
Potash—							
Libon,	13 c.	£14					
Potash Crystals—							
New York,	9 c.	£74					
Toronto,	3	17					
Halifax,	4	24					
Potassium Bichromate—							
Auckland,	4 c.	£9					
Potassium Bromide—							
Hamburg,	20 cs.	£96					
Potassium Chlorate—							
Genoa,	2 cs.	£15					
Hong Kong,	10 c.	45					
Libon,	1 t.	75					
Potassium Cyanide—							
Rockhampton,	1 t.	£177					
Potassium Iodide—							
Hamburg,	4 kgs.	£178					
Saltpetre—							
Colombo,	10 c.	£12					
St. Michaels,	1 t.	24					
Bahia,	1 14	40					
Sydney,	3	65					
Melbourne,	3 15	79					
Madeira,	22 9	224					
Porto Alegre,	1	22					
Rio de Janeiro,	11 5	253					
Gibraltar,	5	102					
Canterbury,	10	11					
Algoa Bay,	9	1					
Oporto,	5 9	111					
Sheep Dip—							
Melbourne,	150 pkgs.	£200					
Durban,	1,100 cs.	2,200					
Algoa Bay,	6 t. 7 c. 33	173					
Calcutta,	50 drs.	29					
Soda Ash—							
Townsville,	4 t. 18 c.	£32					
Lytelton,	10 4	64					
Soda Crystals—							
Colombo,	1 t. 13 c.	£6					
Oporto,	8	21					
Hong Kong,	1	4					
Alexandria,	1	3					
Sodium Bicarbonate—							
Trinidad,	10 c.	£4					
B. Ayres,	10	8					
Maryboro',	1 t.	8					
Natal,	10	5					
Brisbane,	1	9					
Algoa Bay,	10	4					
Sodium Nitrate—							
Grenada,	61.	£60					
Sodium Silicate—							
Sydney,	5 t. 5 c.	£24					
Lytelton,	8 4	48					
Sodium Sulphate—							
Ghent,	30 t.	£50					
Strontium Nitrate—							
Bombay,	4 c.	£7					
Sulphur—							
Algoa Bay,	2 t. 5 c.	£28					
Madeira,	22 2	215					
Melbourne,	1	10					
Natal,	1 10	11					
Sulphuric Acid—							
Amsterdam,	1 t.	£9					
Superphosphate—							
Harlingen,	19 t. 10 c.	£60					
Martinique,	360	1,184					
Genoa,	100	300					
Mauritius,	25	81					
Landerneau,	74	222					
Bordeaux,	45	135					
Superphosphate of Lime—							
Barbadoes,	50 t.	£198					
Tartaric Acid—							
Auckland,	5 c.	£25					
B. Ayres,	1 t. 1 4 brls.	21					
Brisbane,	1 t. 1	109					
Wellington,	5	26					
Boston,	1 ck.	27					
Melbourne,	1	98					
Boulogne,	5	32					
Hamburg,	10	54					
Lytelton,	10	60		</			

San Francisco,	175	
Adelaide,	42	
Algoa Bay,	25 bxs.	24
Antwerp,	64	
Aracaju,	10	
Baltimore,	300	135
Bombay,	10	
Cartagena, S.,	35	
Chicago,	100	
Constantinople,	72	
Genoa,	163	
Halifax, 30 cks.		
Malaga, 5	30	
Malta,	18	
Marseilles,	214	
Odessa,	100	
Pernambuco,	15	
Portland, Or.,	30	
St. Louis, 15 cs.	10 kgs.	20
San Sebastian,	50	
Seville,	32	50
Shanghai,	4	
Sourabaya,	22	
Sydney,	42	9 pkgs.
Trieste,	15	
Valencia,	60	
Valparaiso,	200	
Venice,	34	
Yokohama,	50	

Chemicals (otherwise undescribed)

Limassol,	2 t. 2 c.	£67
Galatz,	1 11	50
New York,	10	340
Smyrna,	1 11 3	54
Alexandria,	1	34
Samson,	12	19

Chemicals (otherwise undescribed) and Boracic Acid—

Havre,	1 t. 1 q.	£40
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China Clay—

Bombay,	145 t.	
Boston,	200	
Calcutta,		128 cks.
Rio de Janeiro,	2	

Coal Products—

Aniline Colours		
Boston,	2 cs.	
New York,		23 cks.
Shanghai,	55	
Varna,	1	

Aniline Oil

Genoa,	3 dms.	
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Aniline Salts

Barcelona,	20 brls. 11 cks.	
Piræus,	5	

Tar

Pt. Natal,	300 dms.	
Sierra Leone,	14 brls.	

Colours—

Lisbon,	2 cks.	
Kustendjie,	34 kgs.	

Copperas—

Larnaca,	1 t. 18 c.	£4
San Francisco,	172 5 1 q.	304
Bombay,	97 12 2	173
Galatz,	5	10
B. Ayres,	18 5 2	40

Copper Sulphate—

Genoa,	17 t. 9 c.	£243
Venice,	28 5 1 q.	404
Leghorn,	10 2 2	141
Algiers,	5 4 3	79
Odessa,	16 2	234
B. Ayres,	22 3 1	326
Lisbon,	2 3 1	32
Genoa,	10 1 1	144
Rouen,	29 19 1	412
Bordeaux,	123 14 1	1,965
Rouen,	15 5	244
Naples,	2 4 2	35

Cream of Tartar—

Kurrachee,	1 c. 1 q.	£4
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Dried Blood—

Baltimore,	80 t. 10 c.	£720
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Guano—

Baltimore,	101 t. 15 c.	£430
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Guano Phosphate—

Hamburg,	150 t.	£740
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Gypsum—

Antwerp,	13 t.	£38
Amsterdam,	2 2 c.	6

Iron Oxide—

Philadelphia,	35 cks.	£290
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Lead Acetate—

Aleppo,	5 c. 1 q.	£8
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Lime—

Antigua,	4 t. 14 c.	£5
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Litharge—

Salonica,	20 kgs.	
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Magnesia—

Tampico,	2 cs.	
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Magnesium Carbonate—

Havana,	6 cs.	
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Manure—

Genoa,	450 t. 2 c. 1 q.	£1,966
Valencia,	21 15	60
Barbadoes,	15 7 1	77
Baltimore,	7 1	60
St. Nazaire,	380 2	1,106
Marseilles,	245 9 3	1,425
Antwerp,	51 15	196
Bordeaux,	75 3	227
Havre,	350 5	1,064

Metallic Sodium—

Rotterdam,	2 t. 2 c. 3 q.	£414
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Ochre—

Bahia,	20 brls.	
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Oxalic Acid—

Kurrachee,	5 c.	£7
Melbourne,	2 2	56

Paint—

Amsterdam,	9 kgs. 10 dms.	
Calcutta,		10 brls.
Callao,	53	
Havana,	4 cks.	
Para,	13	
Rangoon,	4	
Rio de Janeiro,	24	
Vera Cruz, 4 cks.		
Volo,	1	2
Bahia,	1	
Barcelona,	4	
Cape Town,	10	
Colombo,	8	
E. London,	2 320	
Huelva,	20	
Kustendjie,	100	
Lisbon,		5 cs.
Madeira,	9	
Maranham,	2	3
N. Orleans,		6
Sette Camma,		10
Sierra Leone,	56	
Trieste,	1 ck.	

Painters' Colours—

Batavia,	40 kgs.	
Canada,		1 cs.
Cape Town,	2 ck. 16	14
Ceara,		1 20 brls.
Genoa,		30 bgs.
Hamburg,		11
New York,	14	2 pkgs.
Odessa,		82
Pernambuco,		20 cks.
Philadelphia,	8 kgs. 23	
Santiago de Cuba,	12	
Smyrna,		4
Belize,	283	8
Boca del Riachuelo,		18 tins.
Bombay,	7 cs.	2 cks.
Boston,		165 brls.
B. Ayres,	17 106 kgs	99 brls. 200 dms.
Cartagena, S.A.,	440	
Gibraltar,		40
Guaymas,	2	2
Havana,		10
Ibrail,		8 tcs. 7
Manaos,	56	
Melbourne,		25
Para,	200 21	6
Rio de Janeiro,	117	
Rotterdam,		10 cks.
San Francisco,		100
Valparaiso,	110	14 cs.

Paraffin Wax—

Patras,	5 bgs.	
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Phosphorus—

Santos,	4 c.	£58
Hiogo,	5 cs.	55
Shanghai,	25	251
Yokohama,	10	130

Potash—

Calcutta,	1 t. 5 c.	£29
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Potassium Bicarbonate—

Rio de Janeiro,	1 t.	£50
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Potassium Bichromate—

Aleppo,	4 c.	£9
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Potassium Carbonate—

St. Louis,	1 t. 5 c. 3 q.	£31
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Potassium Chlorate—

Montreal,	10 c.	£28
Santos,	2 t.	156
Rosario,		23
Shanghai,	8 2	472
Kobe,	5	282
Genoa,		10
Hamburg,	1	56
Canada,		27
St. Paul's	1 15	99
Gothenburg,	1 16	106
Boston,	5 5	304
Antwerp,	3 5	200
Rotterdam,		34
New York,	23 15	1,383
Higo,	37 10	2,109
Odessa,		17

Salt—

Calcutta,	5,125 t.	
Conakry,	743½	
Galveston,	748½	
Gr. Bassa,	5	
Hamburg,	149½ 6 c.	
Malta,	5	
Maranham,	7½	
Rio de Janeiro,	6½	
Rouen,	15	
Salt Pond,	310	
San Francisco,	463½	
Savannah,	500	
Amsterdam,	150	
Antwerp,	274 18	
Bakana,	80	
Benin,	25 7	
Bonny,	10	
Boston,	65	
Buguma,	75	
Cameroons,	43½	
Gr. Bassam,	25	
Halifax,	1,020	
Hillsboro,	230	
Iceland,	380	
Landana,	5	
Loango,	8	
Melbourne,	40	
Noqui,	31½	
Old Calabar,	180	
Portland, M.,	325	
Rangoon,	418	
Rotterdam,	128	
St. Ubes,	60	
Sinoe,	5	
Warri,	13 12	

Salt Cake—

Baltimore,	113 12 c.	£256
Kokomo,	174 12	432
Philadelphia,	100 2	240

Saltpetre—

Pernambuco,	6 t.	£128
Rio de Janeiro,	4 6 c.	64
Piræus,	9 15	205

Sheep Dip—

M. Video,	3 t. 5 c. 1 q.	£50
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Soap—

Algoa Bay,	62 cs.	
Amsterdam,		40 bxs.
Belize,		350
Calcutta,	120	
Cameroons,	100	
Cape Lahon,	100	
Demerara,	2	
E. London,	30	
Honolulu,	2	
Montreal,	100	
New York,	55	11 cks.
Pt. Natal,	10	
Shanghai,		1,100
Toronto,	500	
Axim,		20
Barbadoes,		313
Benin,		200
Boma,		200
Bombay,		350
Bonny,		300
Brussels,		425
C. C. Castle,	1	
Curacao,		50
Genoa,		200
Gibraltar,	25 50	
Gr. Bassam,	20	
Lagos,		50
Malta,		2
New Orleans,		5
Palma,		448
Para,	1	
Puerto Cortez,		100
St. Lucia,		10
Sierra Leone,		236
Teneriffe,		372
Tofoi,		20
Trinidad,		1,350
Warri,		200

Soda Ash—

Adelaide,	83 cks.	
Baltimore,	625 4,644 bgs.	
Barcelona,	22	
Batavia,	5	
Bombay,	19	5 kgs.
Boston,	274 3,892	
B. Ayres,	212	100 brls.
Copenhagen,	10	
Genoa,	2	100
Havana,	3	
Kingsley,		80
Malaga,		50
M. Video,		125
Naples,	62	
Newfairwater,	10	
New Orleans,	20	
New York,	1,259 9,370	
Pecalangan,	16	
Pernambuco,	36	
Philadelphia,	727	2,600
Prevesa,	5	

Rio de Janeiro,	15	
Rosario,		60
San Francisco,	190	
Sherbrooke,		96
Valparaiso,	100	12
Callao,	40	
Constantinople,	27	
Kobe,	132	
Melbourne,	608	
Puerto Cabello,		12
Smyrna,		20
Syr,		100

Soda Crystals—

Algoa Bay,	15 kgs.	
Bari,		10 brls.
Batavia,		20 cks.
Bombay,	88	
Boston,		560
Calcutta,		33
Constantinople,		20
Halifax,	40	
Lisbon,		6
Malta,		50
M. Video,		10
New Orleans,		250
New York,		50
Piræus,		20
Portland, Or.,	100	
Pt. Natal,	40	
St. John's, Nfld.,		35
Toronto,	30	
Java,	267	
Philadelphia,		167 180
Rosario,		100
San Francisco,		334
Valparaiso,		2

Sodium Arseniate—

Rouen,	5 cks.	
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Sodium Biorate—

Rotterdam,	8 cks.	
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Sodium Bicarbonate—

Algoa Bay,	34		10
Amsterdam,	20		
Antwerp,	125		2
Barcelona,	100		
Bombay,	112		
Bordeaux,	90		
Boston,			150
B. Ayres,	30		26
Calcutta,	1,000		
Colombo,			2
Copenhagen,			2
Dunkirk,	20		
Halifax,	100		
Hamburg,	80		4
Havre,	60		
Ibrail,	30		
Kingston, Jam.,	30		
Kingston, Ont.,	20		1
Kurrachee,	50		
London, Ont.,			5

Sulphuric Acid—			
Kurrachee,	12 t. 5 c.	£55	
Bordeaux,	44 18 2 q.	696	
Tarragona,	24 11 3	388	
Marseilles,	263 12 2	4,030	
Venice,	31 1 1	471	
Calcutta,	5	80	
Bombay,	5	80	
Superphosphate—			
Valencia,	65 t. 10 c 3 q.	£163	
Superphosphate of Lime—			
Valencia,	207 t.	£456	
Nantes,	100 8 c. 3 q.	198	
Tallow—			
Hamburg,	11 cks.		
Tartaric Acid—			
Kurrachee,	1 c. 1 q.	£5	
Turpentine—			
San Jose de Guatemala,	20 dms.	£8	
Lagos,	10	5	
Eten,	3	9	
Varnish—			
Montreal,	6 cks. 7 cs.		
Calcutta,		2 brls.	
Candia,	1		
Cape Town,	3	1 dm.	
Hong Kong,	1		
Kustendijie,		8	
Manaos,		4 5	
St. John's, Nfld.,	3		
Vermillionette—			
Calcutta,	4 cks.		
Waste Salt—			
Philadelphia,	52½ t.		
White Lead—			
Bahia,	260 kgs.		
Cape Town,	85 dms. 1 ck.		
Ferrol,	2 brls		
Maccio,		2	
Santander,	3		
Zinc Chloride—			
Bombay,	3 t. 17 c. 3 q.	£57	
Bordeaux,	11 6	65	
Zinc White—			
Bahia,	10 kgs.		
Pernambuco,	1 t.		

HULL.

Week ending March 4th.

Ammonium Sulphate—			
Bordeaux,	100 bgs.		
Dunkirk,	662		
Ghent,	881		
Bleaching Powder—			
Bombay,	66 cks. 140 dms.		
New York,	256		
Caustic Soda—			
Antwerp,	30 kgs.		
Bombay,	150 dms.		
Chemicals (otherwise undescribed)			
Antwerp,	33 cs.	40 pks.	
Amsterdam,		2 cks. 4	
Bergen,		2,058 250 pkgs.	
Bombay,			
Bordeaux,	40		
Constantinople,	50		
Christiania,	3	318 slbs.	
Gothenburg,	31	103	
Hamburg,	17	2	
Kurrachee,	62	500 pks.	
New York,	65		
Rotterdam,	71	40 pkgs.	
Cottonseed Oil—			
Antwerp,	168 c.		
Amsterdam,	21		
Bremen,	200		
Flushing,	135		
Gothenburg,	150		
Hamburg,	162		
Rotterdam,	1,694		
Crocoite—			
Antwerp,	12 cks.		
Odessa,	1,304		
Dyestuffs (otherwise undescribed)			
Amsterdam,	2 bls.		
Linseed Oil—			
Antwerp,	200 c.		
Bergen,	38		
Bombay,	135		
Bordeaux,	20		
Christiansand,	52		
Christiania,	342		
Drontheim,	51		
Hamburg,	376		
Kurrachee,	40		
Stavanger,	27		

Naphtha—			
Dunkirk,	25 cks.		
Painters' Colours—			
Antwerp,	6 cs. 223 kgs. 25 cks. 2 pkgs.		
Amsterdam,	1 cs.	8	
Bergen,	36 dms.	2	
Bombay,	186 cs.	12 200 pks.	
Bremen,	2		
Bordeaux,		10 28 pkgs.	
Christiansund,	96 kgs.		
Christiansand,		1	
Christiania,		148	
Drontheim,	1 ck. 65 dms.		
Flushing,		10	
Ghent,	1 cs.	22	
Gothenburg,	10		
Hamburg,	1		
New York,		349 180 dms.	
Odessa,		438	
Rotterdam,		19	
Pitch—			
Antwerp,	256 t.		
Dunkirk,	256		
Rosin—			
Christiania,	6 cks.		
Soap—			
Antwerp,	13 cs.		
Christiania,	2		
Tar—			
Antwerp,	2 cks.		
Amsterdam,	95		
Bergen,	5		
Varnish—			
Antwerp,	5 cs. 1 dm.		
Amsterdam,	5 cks.		
Bombay,		75 dms.	
Ghent,	5 cs.		
Gothenburg,	3		

GLASGOW.

Week ending March 9th.

Acid—			
Straits,		£20	
Ammonium Sulphate—			
Demerara,	211 t. 15½ c.	£2,374	
Valencia,	256 8	2,576	
France,	23	227	
Bleaching Powder—			
Bombay,	1 t. 13½ c.	£21	
Melbourne,	6 ½	48	
Coal Products—			
Benzol			
Dieppe,	141 brls. 33 pns.	£650	
Rotterdam,	50	395	
Crocoite Oil			
Seville,	60 t. 14½ c.	£116	
Pitch			
St. Nazaire,	752 t. 9 c.	£1,120	
Seville,	135 1	202	
Rochefort,	911 11	1,276	
Dieppe,	470	690	
Rotterdam,	209	156	
Ibrail,	2,140		
Bombay,		82	
Tar			
Straits,		£70	
Bombay,		108	
Colombo,		47	
Madras,		58	
Calcutta,	24 t. 7½ c.	86	
New York,	25	55	
Tar Oil			
Dieppe,	50 brls.	£50	
Copperas—			
Bombay,	19 t. 3 c.	£40	
Dyestuffs—			
Aniline			
Calcutta,	200 lbs.	£29	
Extracts			
Spain,	11 t. 2½ c.	£208	
Indigo			
New York,	7 t. 6½ c.	£180	
Glucose—			
Cape Colony,	1 t. 13½ c.	£20	
Lead Acetate—			
Bombay,	5 t. 5 c.	£86. 10s.	
Linseed Oil—			
Straits,	1 t. 10 c.	£51	
Singapore,	3 7½	85	
Cape Colony,	4 7½	112	
Chili,	4 13½	121	
Litharge—			
Oporto,	3 t.	£45	

Magnesia—			
Spain,	6 t. 18½ c.	£106	
Magnesium Sulphate—			
Bombay,	10 t. 15 c.	£44	
Manganese—			
Rotterdam,	2 t. 15 c.	£22	
Manure—			
Italy,	429 t. 11 c.	£2,500	
Trinidad,		223	
Cullera,	408 12	3,281	
Paint—			
Philippines,	2 t. 17 c.	£67	
Singapore,	2 17½	53	
Hong Kong,	10	183	
Trinidad,	1½	20	
Bombay,	13 14	124	
Calcutta,	5 7	50	
Chili,	4 9½	£44. 12s.	
Painters' Colours—			
Cape Colony,		£344	
Colombo,	9 t. 15½ c.	98	
Calcutta,	8 17	165	
Paraffin Wax—			
Japan,	31 t. 9½ c.	£599	
Bombay,	1	23	
Cape Colony,	11 16½	362	
Italy,	19 4½	516	
Spain,	6 14½	175	
Chili,	2 6½	79	
France,	30 8½	762	
Phosphoric Acid—			
Trinidad,	3 t. 10½ c.	£90	
Potassium Bichromate—			
Italy,	4 t. 10 c.	£181	
Calcutta,	1 5½	50	
Amsterdam,		586	
Rotterdam,		570	
Spain,	31 13½	1,248	
Potassium Frusate—			
Italy,	8½ c.	£67	
Potassium Sulphate—			
Cullera,	25 t.	£137	
Rosin—			
Bombay,	13 t. ¼ c.	£75	
Rosin Oil—			
Cape Colony,	9 t. 5 c.	£65	
Soap—			
Philippines,	1 t. 5 c.	£24	
Bombay,	2 7½	28	
Cape Colony,	1 1½	42	
Bombay,	3 10½	47	
New York,	10 2½	130	
Chili,	2½	25	
Sodium Bichromate—			
Italy,	113 t. 3 c.	£186	
Spain,	5 2½	230	
Spent Oxide—			
Antwerp,	370 t.	£370	
Stannous Chloride—			
New York,	5½ c.	£22	
Sulphuric Acid—			
Philippines,		£21	
Bombay,	123 t. 13 c.	618	
Tallow—			
Rotterdam,	5 t. 2 c.	£174	
Turpentine—			
Philippines,			
White Lead—			
Oporto,	3 t. 9 c.	£48	

TYNE.

Week ending March 4th.

Alkali—			
Leghorn,		7 t.	
Rotterdam,		1½	
Barcelona,		20 6 c.	
Ammonium Sulphate—			
Palermo,		70 t.	
Ghent,		5½	
Antimony—			
Rotterdam,	2 t.		
Barium Binocide—			
Dunkirk,	8 t.		
Barytes—			
Hamburg,	10 t.		
Bleaching Powder—			
Antwerp,	97 t.		
Leghorn,	7		
Christiania,	15		
Bergen,	1		
Esbjerg,	5		
San Francisco,	64		
Hamburg,	21		
Rotterdam,	3		
Drontheim,	9		

Caustic Potash—			
Melbourne,	1 t. 14 c.		
Caustic Soda—			
Antwerp,	4 t.		
Leghorn,	15		
Stavanger,	1		
San Francisco,	43		
Hamburg,	16½		
Genoa,	10 10 c.		
Batoum,	50 4		
Barcelona,	22 10		
Melbourne,	5 10		

Copperas—			
San Francisco,	56½ t.		
Litharge—			
Rotterdam,	1 t. 8 c.		
Melbourne,	2		

Magnesia—			
Bilbao,	6 t.		
Leghorn,		4 c.	
Hamburg,		2	
Odessa,		1 5	
Barcelona,		5 10	

Paint—			
Arendal,		9 c.	
Phosphorus—			
Barcelona,		9 c.	

Salt—			
Esbjerg,		10 t.	
Soda—			
Antwerp,		5 t.	
Jersey,		30	
Christiania,		30	
Rotterdam,		25	
Genoa,		25 8 c.	
Smyrna,		15	
Constantinople,		10 3	
Sydney,		216 15	

PRICES CURRENT.

WEDNESDAY, MARCH 15th

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—		£	s.	d.
Acetic, 25 %, and 40 %	per cwt	7/-	&	11/-
„ Glacial	„	50/-		
Arsenic S.G., 2000°	„	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
„ (Cylinder), 30° Tw.	„	0	3	0
Nitric 80° Tw.	per lb.	0	0	1¾
Nitrous	„	0	0	1¾
Oxalic	nett	„	0	3½
Phosphoric, 1750°	„	0	1	2½
Picric	„	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
„ (monohydrate)	„	5	10	0
„ (Pyrites, 168°)	„	3	0	0
„ „ 150°	„	1	5	0
„ (free from arsenic, 145°)	„	1	6	0
Sulphurous (solution) S.G. 1025	„	3	0	0
Tannic (pure)	per lb.	0	1	2
Tartaric	„	0	0	11½
Arsenic, white powdered	nett per ton	13	10	0
Alum (loose lump)	„	5	2	6
Alumina Sulphate (pure)	„	5	0	0
Aluminoferic	„	2	10	0
Aluminium	per lb.	0	4	0
Ammonia, Anhydrous	„	0	1	2
„ 880=28°	per lb.	0	0	2½
„ =24°	„	0	0	1¾
„ Carbonate	nett	„	0	3½
„ Muriate	per ton	20	0	0
„ „ (sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
„ Nitrate	per ton	39	0	0
„ Phosphate	per lb.	0	0	10½
„ Sulphate (grey) London	per ton	12	10	0
„ „ (grey) Hull	„	12	10	0
Aniline Oil (pure)	per lb.	0	0	7
Aniline Salt	„	0	0	6½
Antimony	per ton	45	10	0
„ (tartar emetic)	per lb.	0	1	0
„ (golden sulphide)	„	0	0	10
Barium Chloride	per ton	7	10	0
„ Carbonate (native)	„	3	10	0
„ Sulphate (native levigated)	„	45/-	to	75/-
Bleaching Powder, 35 %	nett	„	8	0
„ Liquor, 7 %	„	3	10	0
Bisulphide of Carbon	„	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	„	17/6	to	35/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	8
Magenta	„	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	7
„ 50/90	„	0	1	5
Carbolic Acid (crystallised 40°)	per lb.	0	0	7½
„ (crude 60°)	per gallon	0	2	2
Creosote (ordinary)	„	0	0	0¾
„ (filtered for Lucigen light)	„	0	0	1¼
Crude Naphtha 30 % @ 120° C.	„	0	0	10
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	„	1	6	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	2
„ Lucigen and „ Wells ” Oils	„	0	0	1¼
Copper	per ton	45	6	3
„ Sulphate	„	16	5	0
„ Oxide (copper scales)	„	42	0	0
Glycerine (crude)	„	13	0	0
„ (distilled S.G. 1250°)	„	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
„ Sulphide (antimony slag)	„	2	0	0
Lead (sheet) for cash	„	11	5	0
„ Litharge Flake (ex ship)	„	13	10	0
„ Acetate (white „)	„	25	15	0
„ „ brown „)	„	17	10	0
„ Carbonate (white lead) pure	„	20	0	0
„ Nitrate	„	20	0	0

Lime, Acetate (brown)	per ton	4	6
„ „ (grey)	„	10	
Magnesium (ribbon and wire)	per oz.	0	
„ Chloride (ex ship)	per ton	2	
„ Carbonate	per cwt.	1	
„ Hydrate	per ton.	17	
„ Sulphate (Epsom Salts)	per ton	2	
Manganese, Sulphate	„	17	
„ Borate	per cwt.	2	
„ Ore, 70 %	per ton	4	
Methylated Spirit, 61° O.P.	per gallon	0	
Naphtha (Wood), Solvent	„	0	
„ Miscible, 60° O.P.	„	0	
Oils:—			
Cotton-seed	per ton	25	
Linseed	„	22	
Lubricating, Scotch, 890°—895°	„	7	
Petroleum, Russian	per gallon	0	
„ American	„	0	
Potassium (metal)	per oz.	0	
„ Bichromate	nett per lb.	0	
„ Carbonate, 90% (ex ship)	per ton	17	
„ Chlorate	per lb.	0	
„ Cyanide, 98%	„	0	
„ Hydrate (Caustic Potash) 80/85 %	per ton	21	
„ „ (Caustic Potash) 75/80 %	„	20	
„ „ (Caustic Potash) 70/75 %	„	20	
„ Nitrate (refined)	per cwt.	1	
„ Permanganate	per cwt.	3	
„ Prussiate Yellow	per lb.	0	
„ Sulphate, 90 % (ex ship)	per ton	9	
„ Muriate, 80 % (do.)	„	8	
Silver (metal)	per oz.	0	
„ Nitrate	„	0	
Sodium (metal)	per lb.	0	
„ Carb. (refined Soda-ash) 48 %	nett per ton	6	
„ „ (Caustic Soda-ash) 48 %	„	4	
„ „ (Carb. Soda-ash) 48 %	„	5	
„ „ (Carb. Soda-ash) 58 %	„	5	
„ „ (Soda Crystals)	„	3	
„ Acetate (ex-ship)	„	17	
„ Arseniate, 45 %	„	11	
„ Chlorate	per lb.	0	
„ Borate (Borax)	net, per ton.	29	
„ Bichromate	per lb.	0	
„ Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	11	
„ „ (74 % Caustic Soda)	„	10	
„ „ (70 % Caustic Soda)	„	9	
„ „ (60 % Caustic Soda)	„	8	
„ „ (60 % Caustic Soda, cream) (f.o.b.)	„	10	
„ Bicarbonate	„	6	
„ Hypsulphite	„	7	
„ Manganate, 30%	„	16	
„ Nitrate (95 %) ex-ship Liverpool	per cwt.	0	
„ Nitrite, 98 %	per ton	30	
„ Phosphate	„	15	
„ Prussiate	per lb.	0	
„ Silicate (glass)	per ton	5	
„ „ (liquid, 100° Tw.)	„	4	
„ Stannate, 40 %	per cwt.	3	
„ Sulphate (Salt-cake)	per ton.	1	
„ „ (Glauber's Salts)	„	1	
„ Sulphide	„	8	
„ Sulphite	„	6	
Strontium Hydrate, 100%	„	8	
Sulphocyanide Ammonium, 95 %	per lb.	0	
„ Barium, 95 %	„	0	
„ Potassium	„	0	
Sulphur (Flowers)	per ton.	8	
„ (Roll Brimstone)	„	6	
„ Brimstone: Best Quality	„	4	
Superphosphate of Lime (26 %)	„	2	
Tallow	„	26	
Tin (English Ingots)	„	98	
„ Crystals	per lb.	0	
Zinc (Spelter)	per ton	1	
„ Chloride (solution, 96° Tw.)	„	1	

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Vol. XII.

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Notices.

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CALICO PRINTERS' LIABILITIES.

A CASE of considerable importance to calico printers has recently been decided in Scotland. The case in question was that of *Moir v. Hall*. The defendants who have a print works at Barrhead, contracted to print a number of handkerchiefs in loose or fancy colours, soft finished, for the plaintiffs (or according to the phraseology of the Scotch law pursuers), who themselves supplied the rollers. Messrs. Hall and Sons executed their contract, and the goods after being inspected by Messrs. Moir and Co., were packed in tin lined cases and sent to Japan. Prior to the packing of the goods, however, three sets of samples were taken, and severally disposed of as follows: One set was sent abroad with the goods, another to a London firm, and the third to Messrs. Paterson, of Glasgow, through whom the plaintiffs received the order for the goods. About two months after arriving at Japan, from one-third to a quarter of the goods were found to be blemished through the running and marking off of the colours. The two sets of samples, which had been kept in the meantime, in dry and suitable warehouses, were examined and found to have likewise, in a similar manner, become blemished. The plaintiffs forthwith had all the goods sent back from Japan, and sued the defendants for damages, with the result that they obtained a verdict in their favour. The defendants, however, appealed, and Sheriff Cheyne, in giving judgment recently, upheld the Sub-Sheriff's decision *in toto*.

The salient points of the defendants' case, and the way they were treated by the Sheriff, merit special attention as forming precedents likely to affect similar cases in the future.

The defendants contended that after examining and accepting the goods, and paying the charges made by the defendants for their work, the plaintiffs were not entitled to make the claim which they preferred; also that the damage was done through the application of moisture; and further, that in regard to damages the plaintiffs had aggravated the case by withdrawing the whole of the goods instead of separating the faulty ones and selling the others at Yokohama. The plaintiffs attributed the running to defective printing. The Sheriff in stating the grounds on which his judgment was based, pointed out that the defects were not visible when the goods left this country, being latent defects, which developed themselves afterwards, so that the plaintiffs were not precluded from founding on them when discovered, unless they had been tardy in notifying the discovery of the defects, which in this instance the plaintiffs had not been.

Apart from the establishment of a strong presumption that the damage was due to defective printing, it devolved upon the plaintiffs to adduce some reasonable theory for the subsequent development of the defects. This had been done to the satisfaction of the Sheriff's mind by the plaintiffs attributing the damage to the use of oleine, and their explanation was strengthened by part of the evidence put forward by the defendants, who, though unable to get their scientific witnesses to state that the damage was done by the actual application

of water, elucidated the fact that certain of the colours were very likely more hygroscopic than others, though the defendants refused to give particulars of the composition of the colours, that being a trade secret. If, therefore, the conditions under which the material was treated varied, through the strength of the colours employed being stronger at one time than another, it was possible to conceive how the subsequent development of the running and marking off came about. The Sheriff stated that it behoved the defendants, therefore, to show that the operations they had undertaken to perform had been executed in a careful and proper manner. Now though the defendants claim that the goods were printed under superintendence, the evidence shows that the colour mixers were changed during the printing of the goods, and none of the men employed to mix the colours or prepare the oleine solution were called as witnesses, so that this point can hardly be deemed satisfactorily explained, though the arguments of the defendants were based on it, and consequently the presumption of the plaintiffs that the defects were due to the printing remained unrefuted.

The damages were assessed by the Under-Sheriff at £477. os. 1d. with interest as concluded for, and the assessment was confirmed by the Sheriff, since the plaintiffs being merchants and not retailers, were entitled to compensation on the whole of the goods, and not merely to the extent of the difference between the price which should have been received for the damaged portion (had it not been damaged) and the price which was actually received. Further, seeing that presumably the running would extend to the rest of the goods, a fact which would naturally keep buyers off, the plaintiffs were justified in having the goods sent back *en masse*.

It will thus be seen that the responsibilities of the printer are very clearly defined, it being necessary or tantamount thereto, for the printer to tacitly guarantee that the printed goods will keep for any length of time under fair conditions; while should blemishes occur, a court of law is not satisfied that the printing has been consistently performed unless there is direct evidence to prove the statement, the plea that to give detailed evidence would necessitate revealing trade secrets apparently being of no avail.

THE RIBBLE JOINT COMMITTEE.

THE usual meeting of the committee was held at the County Offices, Preston, last week, Mr. T. Lightbown, presiding.

The Chief Inspector (Mr. Naylor) presented his report, which was a lengthy one, and contained the following particulars concerning the local authorities and their sewage schemes:—Before reporting upon the work of the past month, I will draw attention to the present position of the committee with relation to local authorities—First: Proceedings have been instituted against nine. Orders have been made in court with regard to four of these cases, one being part heard, the adjournment to take place on the 26th prox., while the hearing of the remaining four is adjourned by request, that steps may be taken to obliterate the sources of pollution. Second: Notices of intention to take proceedings have been served upon 16 authorities. Already three of these cases are adjourned—namely, those concerning the Blackburn and Burnley Rural Sanitary Authorities, and the Walton-le-Dale Local Board. At the last meeting it was decided that five—namely, Blackrod, Adlington, Horwich, Ormskirk, and Billings Local Boards, should be asked to send a reply to my last report within a month from date, and that the remaining eight—namely, Accrington, Darwen, and Wigan boroughs, and Brierfield, Leyland, Ince, Skelmersdale, and Standish Local Boards, should be again reported upon. On the 14th ult. I met a deputation from the Blackrod Local Board on the farms, when they explained that the tenants on the farms had certainly been lax in paying proper attention to the treatment of sewage, but expressed a determination to see that matters were properly attended to in future. The land available for treatment of sewage is certainly quite sufficient, amounting to 80 acres, and the Board also promised to put down, at its own

expense, for the tenant, all pipes which would be necessary to convey sewage to any portion of the land. They also instructed their tenants to keep a sharp look-out, and to report to the Board any act of negligence on the part of the tenants. Under these circumstances, I recommend that a six months' trial be given before further action is taken for obtaining an order against them. I attended a meeting of the Adlington Local Board on the 1st inst., when plans for the improvement of the sewage tanks and new filter beds were presented to the Board by Mr. McCallum, C.E. The scheme proposed was such an improvement, would deal satisfactorily with the Adlington sewage, concerning the same, I have since received the following communication:—"The Adlington Local Board have resolved to adopt Mr. McCallum's proposed scheme for dealing with the sewage of the district, and have instructed him to prepare the necessary estimates, &c., to submit to the Local Government Board for approval, and Mr. McCallum has promised that he will lose no time about it." A copy of my last report, with analyses of the effluent, was sent to the Clerk to the Board, after which I was asked to meet a deputation of the Board, at the tanks, on the 8th inst. At this meeting I was given to understand that (1) the rates of the district had trebled during the last five years. (2) The Board consider the sewage sufficiently well treated. (3) Other authorities had done better than the Horwich Board. And they would decide not to move until others had moved so far. The district rate of Horwich is 1s. 6d. in the pound, and, as the other objections are certainly invalid, remains for me now to recommend that an order be applied for. Correspondence with other local authorities was included, and the following resolutions passed:—Ormskirk: Resolved that a committee consisting of Messrs. Riding, Eastham, and Brighthouse should inspect the sewage works of similar kinds in other districts, and report to the Board on the best way to remedy the nuisances complained of by the Ribble Joint Committee. The Accrington and Church Joint Sewerage Board is evidently prepared to make an attempt to ameliorate its sewage. Darwen: The sewage tanks at Darwen were reported in March as being too small for the population, an analysis of the effluent was given, and another in November, 1892. These tanks have been in operation, as I understand, for a matter of about 20 years besides being at present too small, they should be supplemented by a filtration area. I can only add to any previous remarks that the method of treating sewage at Darwen is not by any means satisfactory, behind present day practice. The sewage from the Horwich district (population, 1,500) and that from the district below it (population 1,000) is not treated at all. At an interview with the borough surveyor, on the 9th inst., I was given to understand a definite statement and plans of the proposed scheme will be submitted to this Committee in time for the next meeting. The matter therefore be adjourned until that date.—Brierfield: I met the Committee Clerk and Surveyor of the Brierfield Local Board on the 15th ult., and pointed out that the outfall works, on the 2nd inst., and pointed out that the tanks which were laid down 25 years ago, were now practically useless. The coke filter beds, and method of storing and adding the precipitant were also greatly in fault, and the whole thing was not supplied by filtration. I have since received from the surveyor a list of alterations to be made in tanks, including a proper precipitant machine and polarite filter bed to be laid down in addition to the existing tanks, a screening chamber, and gas engine to drive the pumps. Wigan: On the 15th ultimo I met the Sewerage Committee of the County Borough of Wigan at the sewage farm, Hoesland. Any complaints made previously with respect to the Wigan sewage farm have been directed, not so much to the lack of land, as to lack of proper handling of the sewage. On more than one occasion, when the farm has been visited, the whole of the sewage has been found passing through a couple of earth filters, which have been in use for years, and are admittedly in bad condition. At times the sewage has been found passing over only a small portion of the land, and entering the river very little better. Now the cause of this is undoubtedly a disinclination to expend money on sewage purification. The farm consists of 270 acres. Last year this was divided as follows:—70 acres mown hay, 70 acres corn, 16 acres potatoes, 10 acres nips, about six acres filter beds, and under 100 acres grazing. The condition of things is not conducive to the proper purification of the sewage. The number of days in the year when the 160 acres of crops were under sewage treatment is few indeed, as it must be dry for cultivation, seed time, harvest, and of course cannot be irrigated by sewage in rainy weather. The 100 acres remaining would be insufficient to treat the sewage on all other days, and the so-called earth filter bed would be used as a sort of safety valve for the farm.—Croston: I met a deputation of the Croston Local Board, at Croston, on the 15th ultimo, for the purpose of discussing the best means of dealing with the sewage, without going to the expense of a complete scheme for the district. The whole of the district was carefully examined, the results of which will be submitted in a report from the Board to this Committee for consideration.—Barrowford Local Board: I beg to draw attention to the pollution of rivers, caused by the sewage of

of Barrowford Urban Sanitary Authority. There are a houses in the district, which drain either into the Pendle Barrowford Beck, both tributaries of the Ribble. Several present empty directly into the river, no attempts being purification. I suggest that the ordinary two months' notice — Blackburn Rural Sanitary Authority: I am informed by to the Blackburn Rural Sanitary Authority that plans for age of, and a scheme for the purification of the sewage from, ict of Wiltshire have been deposited at the Local Board ent offices prior to application for borrowing powers. ggestions of the chief inspector were adopted in the form of is, which were confirmed by the meeting. awcliffe, in reference to Wigan, said he hoped the Corporation andon their scheme of irrigation. Their best course would be ion of tanks.

aber remarked that they were very slow.

awcliffe: They are slow.

atter was adjourned for two months.

erk reported that two months' notice of proceedings had been ainst 37 manufacturers, and also reported the result in nine which proceedings had been taken against local authorities. re orders against four by consent. He was glad to say that uthorities seemed anxious to comply with the law. (Hear,)ther cases had been adjourned, and he was glad to say that ed that in all those cases terms would be arrived at. It en noticed that the Darwen stream was generally in a worse unday than any other day, the chief inspector was instructed unday observations with a view to prevent it. eting then terminated.

GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

quality of the gas supply to the city of London for the week ing March 11th, 1893, was of good quality on the whole. g to the report of Mr. W. J. Dibdin, chemist and superin- as examiner to the London County Council, the tests made ous testing stations showed two deficiencies in illuminating e against the Gas-Light & Coke Co., and the other against e Metropolitan Gas Co. The following figures have been from the report, and show the average composition of the ated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
and Coke Co.	14	16'34	12'73	0'21	Nil.
Metropolitan Gas	6	16'30	9'38	0'51	Nil.
Gas Co. ..	2	16'35	7'95	0'05	Nil.

andard gas supplied by these companies should have an ng power of 16 sperm candles, and contain not more than 22 ulphur and 4 grains of ammonia per 100 cub. ft. of gas on an f three days.

LEEDS.

ng to the report of Mr. T. Fairley, F.I.C., gas examiner the proportion of total sulphur contained in the Leeds gas month ending March 9th, 1893, has averaged 15'25 grains cubic feet. The following are the results of tests made at the rains per 100 cubic feet.

	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Feb., 1893.	Mar. 1893.			Weight.	Volume.
ne...	17. 23. 28.	6. ..	12'26	0'44	48'90	'06
y...	14. 21.	2. 7.	17'66	0'70	48'90	'06
...	16. 24.	3. 8.	14'68	0'27	48'90	'06
Works	..	..	15'25	0'33	48'90	'06
East	..	..	15'95	1'40	48'90	'06

the month the average illuminating power of the Leeds gas 7, East Parade, the tests being calculated to a uniform con- of 5 feet per hour, and corrected for variations in temperature re to a temperature of 60° Fahr. and a barometric pressure es, has been in standard candles (burning 120 grains of our) :—Standard argand, 24 holes, 18'3; standard batwing, g's illuminating power meter, 18'4.

THE ANALYSIS OF AMMONIA SODA-SCALE.

I N the manufacture of sodium bicarbonate by the ammonia-soda process, a scale is formed in the pipes conveying the ammoniated and partially carbonated brine. Professor Coote, of the Harvard College, U.S.A., superintended the examination of some of this scale in 1886, which had been sent to him from the Solvay Process Company, Syracuse, N.Y. The scale which was then examined, was described as being semi-transparent, of a greenish grey colour possessing a vitreous lustre, although the surface was black in places. From the analyses then made, the scale closely approximated to the formula $\text{MgCO}_3 \cdot \text{Na}_2\text{CO}_3 \cdot \text{NaCl}$. Mr. J. D. Pennock has been further investigating this scale. In communicating the results to the *Journal of Analytical and Applied Chemistry*, he says:—

I have recently examined another scale taken from another apparatus through which the same ammoniated and carbonated brine was passing, but at a somewhat lower temperature. This scale is not so thick as the other, is white and semi-transparent, and the crystals, though definitely formed, are microscopic. It is entirely, or nearly, free from salt, thus differing from the previously mentioned scale, and evidently is the union of one molecule of Na_2CO_3 with one of MgCO_3 . The scale is three-quarters of an inch thick, was four months forming, and is thrown out from a solution which contains only a slight percentage of magnesium impurity.

The original brine is of the following composition.

CaSO_4	4'54 grams, per litre
CaCl_2	2'14 " "
MgCl_2	0'586 " "
NaCl	290'00 " "

Of course, the action of the ammonia and carbonic acid is that of purifying the brine from lime and magnesia, and, as a result, the ammoniated brine passing through the apparatus (in volume about 500 cubic metres per twenty-four hours) where the scale is formed contains the following percentage of MgCl_2 , obtained from analyses of the liquor on different days.

MgCl_2 , grams, per litre	1	2	3	4
	0'076	0'123	0'046	0'054
	5	6		
	0'092	0'068		

The following are the results of analyses of two samples taken from different parts of a large piece of the scale. If the liquor is not well settled, a little CaCO_3 goes along with the liquor in suspension and is held by the double salt in crystallization.

	Per cent.	
	No. 1, dry.	No. 2.
Silica	0'10	0'17
$\text{Fe}_2\text{O}_3, \text{Al}_2\text{O}_3$	0'11	0'07
CaO	1'54	1'20
MgO	19'04	18'74
Na_2O	34'22	33'29
CO_2	45'30	45'20
Cl	0'24	0'14
Loss at 100°	—	1'12

The combination of the above is probably thus:—

	No. 1.	No. 2.
Silica	0'10	0'17
FeCO_3	0'15	0'10
CaCO_3	2'75	2'14
MgCO_3	39'98	39'35
Na_2CO_3	58'50	57'21
NaCl	0'40	0'32
Loss at 100°C	—	1'12

The composition of this scale approximates sufficiently close to that of the crystalline substance containing one molecule of Na_2CO_3 and one molecule of MgCO_3 to say that it is the double salt, $\text{Na}_2\text{CO}_3 \cdot \text{MgCO}_3$.

The other constituents are the suspended impurities in the liquor from which the scale is formed.

This scale, which is a salt formed by one molecule of Na_2CO_3 and one molecule of MgCO_3 , is formed from the same liquor that throws out the other scale consisting of one molecule, each of Na_2CO_3 , MgCO_3 , and NaCl , though the temperature in the first case is somewhat lower.

Hydrochloric acid was added to two grams. of the scale from which analysis No. 2 was made. The solution of the chlorides was evaporated to dryness and heated in a hot air bath at 110°C. to constant weight.

This weight corresponds closely to the theoretical weight calculated from the percentages of the constituents according to analysis No. 2.

	Grams.
Silica	0.0034
Fe ₂ Cl ₆	0.0028
CaCl ₂	0.0475
MgCl ₂	0.8900
NaCl	1.2620
Total	2.2057
Weight of chlorides dried	2.2230

According to *Watts' Dictionary*, I, 788, the double salt MgCO₃, Na₂CO₃, is obtained in anhydrous microscopic crystals by digesting magnesia alba for twelve or fifteen hours at 60° or 70°C. with diacid carbonate of sodium.

"The carbonate of magnesia and of soda is rapidly decomposed by water," (Deville, *Ann. chim. phys.*) I did not find this to be the case with the substance under consideration. Four lots of five grams. each of the finely ground scale were put in beakers with 100 c.c. of distilled water.

No. 1 was kept at 20°C. for half an hour; No. 2 was kept at 50°C. for half an hour; No. 3 was kept at 75°C. for half an hour; No. 4 was boiled for half an hour, adding water to maintain the same volume. Each was then filtered and washed with alcohol. The filtrates were analyzed for Na₂CO₃ and MgCO₃ with the following results:—

	Gms. Na ₂ CO ₃	Gms. MgCO ₃
No. 1 filtrate contained	0.1086	0.0328
" 2 " "	0.1086	0.0432
" 3 " "	0.1086	0.0432
" 4 " "	0.1570	0.0232

Percentage of the scale soluble in 100 c.c. of water:—

	Per cent.
No. 1, at 20°C.	2.82
" 2, " 50°C.	3.05
" 3, " 75°C.	3.05
" 4, boiling	3.60

Legal Intelligence.

CORNWALL ASSIZES.

NISI PRIUS COURT.

(Before Mr. Justice Lawrence.)

LOCKE, MITCHELL, AND SAMPSON v. CARNON CHEMICAL WORKS.

This case was an action for damages brought by three farmers against Mr. R. J. Trythall, for alleged poisoning of cattle by arsenic fumes emitted from the defendant's works. On the resumption of the adjourned hearing reported in this *Journal* p. 160, Vol. xii., the statement of the counsel was corroborated by plaintiff Locke, who further testified that in addition to the heifer which counsel stated had died from arsenic poisoning three other animals had died after being brought back to plaintiff's farm from his father's. All three of the animals died within six weeks. For the loss he received £43 compensation. In October he put nine bullocks on the farm, and in November noticed they were sick with the same symptoms as the previous lot in July. Subsequently two steers died.

Several witnesses living in the neighbourhood deposed to having cattle poisoned and corn damaged, which they attributed to the fumes which issued from the defendant's works. One or two witnesses, however, said they had suffered the same thing for many years.

Mr. T. Olver, veterinary surgeon, Truro, spoke to making a *post-mortem* examination on the bodies of several of the animals that had died, and his opinion was that death was due to arsenical poisoning.

Mr. Foote, for the defence, pointed out that the case was of grave importance. The Carnon Chemical Works, which were the only factory in Cornwall for the manufacture of white arsenic, were as perfect as science could make them, and if an injunction was issued under such circumstances against the defendant, there would be no possibility of carrying on arsenic refining works in the county. It was inconceivable that a jury would grant an injunction on such flimsy testimony as the plaintiff had presented. If a verdict was given for the plaintiff, then any man living within half-a-mile of any arsenic works could bring an action and get them shut up. Almost the whole of plaintiff's case rested upon what took place prior to the erection of the condensers. But since the provision of condensers, it was practically impossible for fumes to escape from defendant's works. He commented on the absence of testimony from other occupiers of farms in the neighbourhood in support of the plaintiff, and contended that as no analysis had been made of the contents of the dead cattle's stomachs,

no conclusive proof had been given that the cattle had died from arsenic.

Defendant stated that no complaint of cattle being poisoned from his works was made until July last, when plaintiff lost one of his heifers. Witness compensated Locke for his loss, but under protest, and in order to settle the matter amicably and to legal proceedings. In consequence of the poisoning of plaintiff's cattle in July he had condensers erected, and since then no poisonous fumes had escaped.

Cross-examined, Defendant said he resisted plaintiff's claim, he regarded it as blackmailing. On the first claim he paid more than he ought to have done, but the blackmailing process began more particularly with the second claim. It was unfair that Locke should be made to compensate him for the loss of his cattle, without asking other arsenic firms in the district to contribute. Had never asked the Cornish Arsenic Company, or Messrs Harvey & Spargo, they should pay a portion of plaintiff's losses. Arsenic generated poisonous fumes as well as arsenic refining. The Company only burnt arsenic, and did not refine it; but they paid compensation four years ago for the loss of five colts, which were poisoned by arsenic fumes on a farm 200 yards from their works. His own factory was equipped with condensers and other apparatus, which, if properly worked, would prevent the escape of arsenic, but if they were carelessly-worked fumes would escape from the chimney.

Re-examined, defendant said the Cornish Arsenic Company were five or six times larger than his own. At the time the case was heard he compensated him for his colts they had no condensers, but now they were put in a month ago. He employed 50 people at his works. Messrs Harvey & Spargo's works were one-quarter the size of his own.

Mr. A. C. Fryer, of Bristol, Government inspector of chemical works, deposed to testing the condensers of the Carnon Chemical Works on three occasions—September, December, and January—and found no escape of arsenious acid to be so small as to be quite innocuous to animal or vegetable life in the neighbourhood of the works. The condensers were performing their work in a satisfactory manner, and the exercise of ordinary care their efficiency could be maintained.

Dr. R. Oxland, of Plymouth, who also inspected defendant's works on December 7th, and made certain tests, certified that with care the works might be maintained in their then state of efficiency without injury to vegetation or animal life.

Edwin Matthews, William Burrows, and Samuel Daniel, foremen of the furnaces at the Carnon Chemical Works, deposed that the condensers had been properly worked.

Mr. Smythe, veterinary surgeon, deposed to having examined plaintiff's cattle last week, and found them perfectly healthy and free from any symptoms of arsenical poisoning. They were not sick, and their condition was compatible with the amount of food they were having.

This concluded the evidence, and the foreman of the jury retired to his lordship that the jury were prepared to give their verdict without hearing counsel.

Mr. Bucknill said he wished to remove an impression that might have been created by his learned friend, Mr. Foote, that the plaintiff wished was to close the defendant's works. Nothing of the sort was desired. There were two distinct matters before the court: the first was as to whether Locke was entitled to recover £43 for two dead beasts, and the second as to whether an injunction, which was claimed by the other plaintiffs, to restrain defendant from carrying on a dangerous business without the proper precautions being taken, should be granted. He would point out that such an injunction might be made inoperative.

Mr. Foote again emphasised the fact that the plaintiffs had neglected taking the necessary step of ascertaining whether or not Locke's cattle died from arsenical poisoning. He contended that the defendant was entitled to a verdict on both causes.

Mr. Bucknill addressed the jury at some length, confining himself to the claim made by Locke. By the uncontradicted evidence, and of sworn witnesses, it had been conclusively shown that two of the bullocks belonging to Locke had been poisoned by arsenical fumes from the defendant's works.

His lordship, in summing up, said no one was allowed, in the course of a business, to injure the property of others, and the question for the jury to consider was whether plaintiff's cattle died in consequence of the escape of fumes from the defendant's works. It had been proved by the demonstration that condensers, properly worked, would avoid dangers and difficulties. But, if they believed the evidence of plaintiff's witnesses, it was obvious that the condensers were not always properly worked. The granting of an injunction would not hurt the defendant at all, because with the slightest care his business could be carried on without doing any harm to the surrounding country.

The jury, after a brief consultation, returned a verdict in favour of the defendant.

MANUFACTURE OF ALUM IN INDIA.

IN a recent issue of an Indian paper, attention is drawn to the manufacture of alum at Kalabagh, on the Indus, at the western end of the Salt range in the Punjab. The works are owned and superintended by a native klan, and as the expenses are small the profits are very considerable. The process of manufacture is divided into five stages—(a), burning the shale; (b), extracting the soluble matter from the burnt shale; (c), boiling it with salts of soda and potassium; (d), crystallizing the impure alum; (e), heating in earthen pots and recrystallizing. In the first stage the black alum shale, composed of clay and iron pyrites, is brought by coolies to the works, where it is broken up into lumps about 5 in. square. The lumps and brushwood are placed in alternate layers of about 1 foot thick, and when the heap is about 15 feet high it is ignited from below. As the pile burns and sinks down, more layers of brushwood and shale are added. After burning for about six months, the mass is allowed to become cold. The shale has become a bright red colour, due to the oxidation of the iron, and is very friable. In the next stage the burnt clay is thrown into square earthen vats about 10 feet long and 2 feet deep. Water is then slowly added until its level is nearly up to that of the shale. The soaked portion of the shale is raked down a little at a time into that part of the vat containing the water, with which it is thoroughly mixed; it is afterwards taken out with a perforated shovel.

The water containing the soluble part of the burnt shale is, after a time, drawn off into a similar vat, and any red solid suspended matter is allowed to settle. It is afterwards drawn off into a shallow circular vat about 10 feet diameter made of plates of sheet iron riveted together. The solution is then boiled with an impure sodium and potassium salt called jansan, obtained from reh—the sodium sulphate and carbonate efflorescence so commonly found in the Punjab. The liquid, after further boiling, is decanted and allowed to crystallize in vats of sundried clay. The crystals are about $\frac{1}{2}$ in. in diameter, and of a light grayish-green colour. These are stacked and allowed to drain for ten days. After this they are put into earthen pots holding about $1\frac{1}{2}$ maunds (112 lb.) with a little water and are heated in a kiln or oven. The earthen pots are broken open when cool and large crystals of alum, some 6 in. long, are found inside. This is the form in which it is sold in the bazaars. These works produce some 3,000 maunds per annum. From three to four seers of alum (7 to 9 lb.) is about the quantity obtained from each maund (75 lb.) of black shale.

Reports of Companies.

THE DEE OIL CO., LTD.

The continued examination of some of the directors and officers of this company was held before Mr. Registrar Emden at the Bankruptcy Buildings, Carey-street, London, on Wednesday last week. The company was formed in May, 1888, the registered offices being in Leadenhall-street, E.C., and the winding-up order was made in April, 1891, the total liabilities to creditors being returned at £58,410., of which £3,768. are unsecured. The assets, valued at £51,582., are entirely absorbed by the claims of debenture-holders, and the deficiency, as regards contributories, is estimated at £103,768.

Mr. Wheeler appeared as Assistant Official Receiver; Mr. Grosvenor Woods for Sir John Stokes, the chairman of the company; Mr. A. E. Caldecott for Mr. Deeley, the vendor; and Mr. Kirby for Mr. Orris, the promoter.

Sir John Stokes stated, in reply to the Assistant Official Receiver, that he was one of the original directors, and had acted as chairman of the company. A prospectus (produced) was the same as that issued to the public when subscriptions were invited for shares and debentures to the amount of £100,000. and £50,000. respectively, the debentures to bear interest at the rate of 6 per cent per annum. That prospectus was approved by the board on June 1, 1888, and ordered to be issued to the public. Witness was present at the meeting, and subsequently signed the minutes. There were two contracts with the vendor—one made on June 27, 1888, and the other on the 10th of August following. Under the first contract the purchase price of the business was £115,000., plus the value of the stock, which was to be taken at a valuation. The August contract set forth that the payment was to be made to the vendor as to £51,800. in cash, £30,200. in shares, and £33,000. in debentures. The public subscribed to the amount of £30,000. or thereabouts in all, but when the list was to have closed on June 8, 1888, applications had only been received for 2,731 shares of £5. each. It was then decided to keep the list open until June 21, by which time 3,165 shares had been applied for, representing £15,825. The directors went to allotment on June 8, when the subscriptions were not sufficient by £3,000. to pay for the stock alone. The debentures subscribed on June 8 amounted to £18,400. out of the £50,000. invited, and the remaining debentures were subsequently

allotted to the vendor. It was a fact, therefore, that the directors went to allotment on the scanty application for £13,600. shares and £18,400 debentures, or a total subscription of about £32,000. The stock was valued, he said, at £16,985., which left only £15,000. for the vendor's cash payment and the working capital, or £85,000. less than the sum estimated as requisite for those purposes according to the prospectus. It was found necessary to then enter into a fresh contract with the vendor, and on August 10, 1888, that step was taken. Under that arrangement the vendor received some cash payments, debentures, and shares for £63,200. and the balance of £51,800. was paid by cheque on August 15, 1888. In order to meet that cheque witness believed that Mr. Deeley, or his nominee, applied for shares to the same amount, and handed over cheques in payment. The cash book of the company showed that 28 different persons applied for shares in that way. Although witness was present at the allotment meeting he knew absolutely nothing of the previous business carried on from his own knowledge. He relied entirely upon the statements made to him by friends, and the report of the accountants and valuers. He consented to allow his name to appear on the prospectus as chairman of the company, and to his being further described as the vice-president of the Suez Canal. The prospectus contained the report of the accountants, and set out in prominent type was the statement that the business during the past ten years had yielded a profit of £171,550., or an annual profit of £17,155. That statement he took for granted, and therefore did not take the trouble to examine the books to ascertain the accuracy of it. He did press the vendor and the promoter to show him the accounts for the year previously to the conversion, but was put off from time to time. Witness afterwards learned that the result of the first year's trading as a limited company was disastrous, and the second year even worse. The first year a profit of £125. was made, and the second year a loss of £13,206. He had, in the first instance, very little experience in company matters, and had he then possessed his present knowledge he would not have allowed the prospectus to go out with his consent. He was not aware that the old firm were indebted to Parr's Bank to the extent of £30,000., and were being pressed by those bankers to pay up, and to turn the business into a company. The company's property was mortgaged to the debenture-holders, on whose behalf a receiver took possession in November, 1891, and was now carrying on the business, and, he believed, with considerable profit. When it was stated that the first year's profit was £125. nothing was written off for depreciation, and had that been done, the balance sheet would have shown a considerable loss. The whole of the working capital of the company disappeared in two years, and that was in the business offered to the public with the statement that for the ten years preceding the conversion it had made an annual profit of £17,000. The falling-off was to be explained by the fact that the raw material received from America turned out to be of inferior quality, and that it had to be put aside and other material purchased in order to carry on heavy contracts, thus entailing a ruinous loss. Witness took no shares in the company to qualify himself as a director, but he did not believe any inducement was held out to him to join the board. As chairman he was to receive £500 a year, but during the time he acted—some two-and-a-half years—he actually received only £750. The company was introduced to him by a friend, and he understood perfectly that the business was a good paying one, and that the only or main reason for its conversion into a company was the retirement of one of the partners. It was true that the company purchased plant and property from the vendor for £115,000., which was valued in the accounts under the winding-up order at only £35,000., but witness was unable to explain the depreciation, and even now doubted whether the property had really depreciated to that extent.

Examined by Mr. Grosvenor Woods, the witness stated that he had as colleagues on the board several gentlemen intimately acquainted with the business, who took part in the preparation of the prospectus. He had every confidence in their statements. They published reports and balance sheets during the two-and-a-half years of their trading as a company. The board discussed the question whether the subscription was sufficient to justify their proceeding to allotment. The main point was whether there would really be sufficient working capital, and, when they were satisfied as to that, they went to allotment. As far as he was personally concerned, witness had every reason to believe that the business was a thoroughly sound concern, and that the reports of the accountants were perfectly true, and the valuation correct.

Mr. W. F. Orris, the promoter of the company, Mr. Ford, the secretary, and other witnesses were also examined, and after some further evidence had been given the proceedings terminated.

THE ROBURITE EXPLOSIVES CO., LTD.

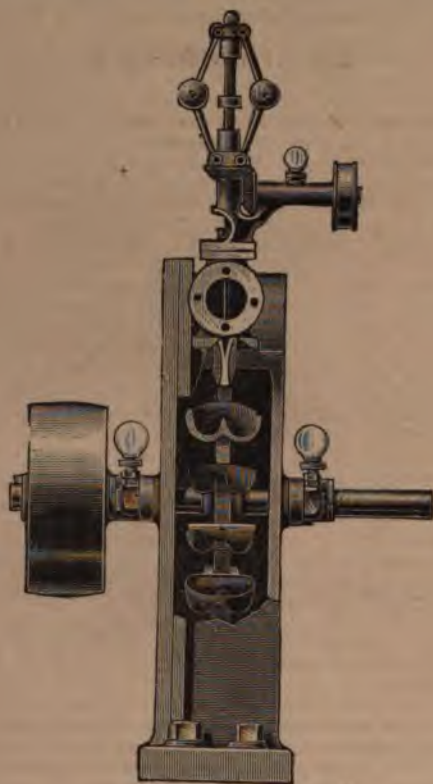
The ordinary general meeting of this company was held last week at the City Terminus Hotel. Lieutenant-General Sir John Stokes presided, and, in moving the adoption of the report, congratulated them on the fact that they were enabled for the first time to declare a

dividend, although it was only a small one. There had been satisfactory progress in their profits, and the expenses generally had been lower. The result of the past year's working would have been still better but for the labour troubles in the coal trade. The motion was seconded by Vice-Admiral P. H. Colomb, and adopted; and a dividend was declared on the ordinary shares of 1 per cent.

THE USE OF WATER FOR SMALL POWER PURPOSES.

WATER under sufficient pressure to be of use for driving power is available in almost every municipality in the kingdom, and water has many advantages over gas and steam for the development of small power. There are many ways in which a convenient motor worked by water can be made use of; small dynamos, lathes, ventilating fans, and paint mills, require power to drive them, and where gas or steam is not available a water motor is just what is wanted. The "Demon" water motor, which is made by Messrs. Pitman and Co., Manchester, is one of the best, if not the best, motor we have met with for such purposes.

In the accompanying illustration we show the motor in section:—



As will be seen this motor is direct acting, the water passing through the ports against the internal wheel, with its valves, etc., and having no dead centre it will start from any position. The water drives the wheel and is then exhausted through a suitable exit (not seen in the engraving). The mechanism is not subject to severe or irregular shocks, there is no concussion on the main, and however much the load varies, or the pressure fluctuates, the speed remains the same. All the wearing surfaces are of best mild steel, gun-metal, and brass. The shaft is prolonged on the opposite side, to receive an additional wheel. The main body of the motor is of rustless iron (patent oxide process), fitted with a removable flanged cover. With a pressure of 10 lbs. per square inch (*i.e.*, a fall of 20 feet) these motors will drive small machinery well.

From the following list some idea of the capabilities of these motors may be gained, and the power and efficiency therein stated is guaranteed, when the motors are worked from the water supply of any English town.

No.	Diameter of Pulley Inches	Floor space required Square feet	Weight lbs.	Power at 50 Percent.
1	3	1	20	$\frac{1}{8}$ horse
2	4	$1\frac{1}{2}$	40	$\frac{1}{4}$ "
3	6	2	60	$\frac{3}{8}$ "
4	6	$2\frac{1}{2}$	90	$\frac{1}{2}$ "
5	9	3	120	$\frac{3}{4}$ "
6	9	3	150	1 "
7	10	$3\frac{1}{2}$	150	1 "
8	10	$3\frac{1}{2}$	200	1 "
9	12	4	250	1 "
10	12	4	300	1 "
11	15	5	350	1 "
12	20	5	400	1 "

There are one or two points about the use of water as a source of power which are worth noting. It is generally cheap, its use does not effect insurance like gas or steam, there is no smell, little if any noise. The motor can be stopped or started at a moment's notice, and there is no waste, as the water which drives these motors can be used over again for any ordinary or domestic purpose save that of drinking.

In our other illustration we show the application of the "Demon" to dynamo driving:—



Steadiness in running is an essential in connection with the generation of electric light from dynamos and in this respect the "Demon" is very highly spoken of, there being no appreciable difference in speed whether the motor is running light or under stress. Last might be mentioned that every precaution has been taken to economize the amount of water used, by getting the greatest possible amount of power out of the same, 80 per cent. efficiency being guaranteed in all circumstances.

IMPORTS AND EXPORTS FOR FEBRUARY.

THE Board of Trade returns for February, 1893, show a net increase in value for both imports and exports of British and foreign produce as compared with the same month in 1892. The export of alkali show an increase of 17.5 per cent. in quantity, and 7.7 per cent. in value.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	cwt.	124,693	120,4
Copper ore and regulus.....	tons	13,981	9,8
Hides, dry and wet	cwt.	65,678	55,7
Nitrate of soda	tons	7,994	5,7
Tallow and stearine	cwt.	101,495	56,2
Tin	"	58,644	67,6

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

		Quantities.	
		1892.	1893.
Alkali	cwt.	420,176	492,9
Cement	tons	39,780	27,1
Coal and coke.....	"	2,076,585	1,914,4
Copper, all kinds	cwt.	141,332	83,7
Iron and steel.....	"	184,310	191,2
Chemical manures	"	27,620	33,4
Oils, seed	"	6,435	5,0
Salt	"	37,647	31,8

Official Memoranda.

(From the Board of Trade Journal.)

TARIFFS OF THE PORTUGUESE COLONIES.

During the past 12 months new tariffs have come into force in the Portuguese Colonies. The following chemical items have been specially abstracted from the complete translation of the tariff. N.B.—1,000 Portuguese reis equal 4s. 6d.

CAPE VERDE ISLANDS.

Import Duties.—Tariff A.

CLASSIFICATION.	Rates of Duty.	
	Kilog.	Reis.
Tar, pitch and coal-tar.....	Kilog.	20
Lime	"	4
Petroleum	"	20
Phosphorus or phosphorus matches	"	120
Soap	"	50
Salt	Decalitre	250
Colours, in powder and colouring earths	Kilog.	10
Candles	"	70

AMBRIZ.

Import Duties.

CLASSIFICATION.	Rates of Duty.	
	Kilog.	Reis.
Tar, pitch and coal-tar.....	Kilog.	20
Lime and cement	"	4
Petroleum	"	20
Phosphorus and phosphorus matches	"	120
Soap	"	50
Salt	10% ad. val.	
Colours, in powder and colouring earth.....	Kilog.	10

ST. THOMAS AND PRINCE'S ISLAND.

The important duties for St. Thomas and Prince's Island are the same as those enumerated for the items above, with the exception of soap and salt, which are subject to a duty of 80 reis per kilog., and 30 reis per decalitre respectively.

DISCOVERY OF A NEW MINERAL IN COLUMBIA.

The *Journal des Mines* announces that a new mineral, the properties of which bear some resemblance to those of asbestos, has recently been discovered in the shape of immense deposits in Columbia.

The mineral in question is amber-coloured; it is transparent and non-combustible.

Experiments have been carried out at Bogota, which tend to prove that the new substance can be used in the manufacture of bank notes.

MANUFACTURE OF PAPER FROM SUGAR-CANE.

It is stated to be a well-established fact that the stalks of the sugar-cane can be utilised for making paper of the best quality, and it is astonishing that at the present time, in face of the very large production of sugar which results in the constant depreciation in value of this product, and *per contra* of the increasing use of paper, this industry has not yet been put to practical purpose, which would enable the sugar planters to get a better return from their plantations.

The fibres of the sugar-cane give a paper of superior quality, and the mechanical or chemical manipulation required in this industry is of the simplest. In fact the sugar contained in the stalks aids towards removing the silicates.

It is stated that a citizen of New Orleans, Mr. Walter P. Forbes by name, is exhibiting in that town a dozen samples of white paper made from the sugar-cane, of remarkable beauty. The best quality of this paper costs less than 1d. per lb.

Now, estimating that 1,100,000 lbs. of sugar-cane produce 22,000 lbs. of paper at rather less than 1d. per lb., it is seen that a surplus value of nearly £100 is to be drawn from the sugar-cane.

Parliamentary Jottings.

THE SOMERSET HOUSE CHEMISTS.

IN the House of Commons on Tuesday, Mr. Egerton asked whether the chief and assistant chemists at Somerset House had resigned, and what was the qualification of Professor Hartley, to whom the post of chief chemist had been offered.

Mr. Hanbury supplemented the question with a long one as to whether these officials had not failed to detect certain frauds upon the Customs House in connection with tobacco, which was purchased for use in hop plantations, on which a rebate of 3s. 3d. was allowed, and which it transpired had been sold to certain German traders, mixed with other refuse tobacco, and allowed a second rebate.

Sir W. Harcourt said he could not be expected to answer such an extraordinary question without notice, and expressed the wish that hon. gentlemen would endeavour to ascertain facts before they put such questions. The answer to the question was that these two gentlemen had not resigned and the post had not been offered to any one else. (Loud Ministerial cheers.)

Mr. Egerton asked whether it was not perfectly competent for an hon. member to ask a question upon what he saw in the newspapers.

The Speaker said he had always endeavoured to discourage that practice and to induce hon. members to take the responsibility of their questions. (Cheers.)

Mr. Hanbury gave notice that he should raise the question on report of Supply.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

J. G. (NEW ZEALAND).—Paper safely to hand for which we thank you.

F. C. J.—We shall be glad to learn the result of your inquiries.

H. K. S. F. (HELSINGFORS).—We trust you will find the information of use as well as of interest.

R. E. & Co.—This week.

T. & S. (BOSTON).—We have forwarded you the enclosure which we received. The sprayer is described in the back numbers of the *Journal*.

J. M.—Case to hand safely. Thanks for your trouble.

J. W.—We have received no reply as yet to our last.

Acid.—Both are employed, but in the majority of cases muriatic acid is used.

Trade Notes.

INNOCUOUS WHITE LEAD.—On Wednesday last a paper was read by Mr. P. F. Nursey, on the "Manufacture of non-poisonous white lead," before the Society of Arts.

ANOTHER COTTON SEED OIL MILL.—A contract has been closed for the erection of a sixty ton cottonseed oil mill which is to be put down at Texas, U.S.A., for the Brownwood Cotton Oil Co., which was incorporated about two months ago, with a capital of £10,000.

WORKING ALUMINIUM SULPHATE DEPOSITS.—A company is being formed for the purpose of working the natural deposits of sulphate of alumina in New Mexico, near Silver City. The deposit contains from 30 to 80 per cent. of alumina, and is easy to work.

HAMPERS BY WATER TO LONDON.—The Patent Iron Hamper Company, of Woodley, near Stockport, last week forwarded to one of their principal customers at the Victoria Docks, London, about 500 of their patent hampers, this being the first consignment of these goods by the new water route.

GOVERNMENT INQUIRY AT ST. HELENS.—An inquiry was held at St. Helens on Friday, by Major-General Phipps Carey, upon the proposed sewage outfall works. The application for loans for the tar distilling works, which was mentioned in these columns last week, was also the subject of inquiry.

MESSRS. R. ENGLAND AND CO.—Mr. R. England has, we learn, started in business at 36, Mark-lane, E.C., as a chemical manufacturer and merchant under the style of R. England and Co. For some thirty years Mr. England has been with Messrs. Thomas Farmer and Co. During part of that time he was closely identified with the management and has therefore a good knowledge of the chemical manure and allied trades.

GERMAN CHEMICAL INDUSTRY.—The Chemical Company (late Messrs. Goldenburg, Geromont, and Co.) Winkel, made a profit last year of £4,736., as compared with £4,004. in 1891. The Chemical Company (late E. Schering), of Berlin, made a net profit during the past year of £62,136. and has declared a dividend of 20 per cent. During last month this country imported from Great Britain 1,132 tons of alkali, as compared with 2,906 tons in February, 1892.

A MATCHLESS CAPITAL.—Paris is generally accepted as being the city *tout sans égal*, nor is it rivalled by Madrid, which, though at present a matchless city is matchless in another sense since it is without matches of any kind. Even a common household wooden lucifer cannot be obtained. Paris has been without cabs, and London without coal, but the position of Madrid is unique. The predicament has arisen from matches being in Spain, as in France, a Government monopoly. The Government make them and sell them and they are very bad and very dear. Having no factory of its own the Government grants a concession to one firm that supplies the whole country. Matches are rather hard done by as they are constantly being "struck" without provocation, though they generally "flare up" when so treated, and the employés of this particular firm have emulated the matches and "struck" but whether without provocation or not, we cannot say. The question is now becoming a serious one in Madrid, though at first the matter was looked upon as a joke. There is serious talk of reverting to the ancient flint and steel and tinder box, and those who have preserved one of these ancient "patience destructors" as a family relic, will be able to congratulate themselves on the practical turn which their archaeological propensities have taken.

COST OF CHEMICALS FOR SEWAGE TREATMENT.—At a meeting of the Salford Town Council on Wednesday last, on the presentation of the estimates of the River Irwell Conservancy Committee, Mr. Ollier asked for an explanation with regard to the proposed expenditure of £3,600. on chemicals at the sewage works, and he was informed that the chairman and deputy chairman of the committee were both absent. A telephone message was sent to the chairman, asking for his presence, but he did not arrive. In the absence of any explanation, Mr. Phillips moved and Mr. Mansfield seconded an amendment for the reduction of the estimate to the extent of £3,600. but various members of the council pointed out that this would practically mean that the sewage works might be shut up, as without the use of chemicals the sewage might as well be turned into the river unpurified. After some discussion Mr. Phillips and Mr. Mansfield substituted an amendment to the effect that the estimate for chemicals be reduced to the sum of £1,500. and this amendment on being put to the meeting was rejected. A further amendment by Mr. Mandley that the whole estimate be reduced by £1,000. was ruled out of order, on the ground that no amendment could be received unless it dealt with a specific item. The original resolution in favour of the Committee's estimate being received and adopted, it was then put to the meeting, with the result that it was rejected, 15 voting for it and 16 against. The position now was that the Conservancy Committee were left without any estimate, and it took the Council about half an hour to consider how to get itself out of this deadlock. Ultimately it appeared to be thought that the best way would be for the Committee to reconsider their estimate, and for the Council to hold a special meeting to discuss it.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is no change to report in the tar products market as there is no business being done in Benzols, and with the single exception of crude carbolic which is now 2s. 4d. for 60's and 2s. 11d. for 75's, prices remain the same as quoted last week. 30% crude naphtha is selling at 7d. to 7½d., and pitch at 25s. to 26s. f.o.b. London and Garston. Anthracene remains at 1s. 2d. for 30% A, and 10d. for 30% B.

There is hardly any change to report in the sulphate of ammonia market, but as buyers are holding off as much as possible the demand is not quite so eager, and it is very possible that requirements are not so urgent this month as they were last. It is evident from the tactics of the buyers that they expect an easier market in April, but no satisfactory reason can be adduced for a decline. The stocks at producers' works are all exhausted, and consumers' stocks are at an almost unprecedented minimum, and moreover, the production is now falling off considerably. For immediate parcels £12. 12s. 6d. would have to be paid, and the position is so strong in the manufacturers' favour that should prices recede this spring they have no one to blame but themselves.

THE LIVERPOOL MINERAL MARKET.

The market this week is unaltered. Manganese: Arrivals but prices are steady. Borate, 7d. per lb.; sulphate, £21; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12 10s.; Magnesite (raw lump) show fresh arrivals, but the prices are unchanged raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish brand): Selling largely at full prices: lump 20s., seconds 16s., 12s. French chalk: Arrivals are small, and prices are unchanged for "Angel White" brand and "Silvery." Barytes: Carbonate scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Fume quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Silesite and manganiferous quiet. Emerystone firm; No. 1 lump, £5. £6.; smalls, £5. to £5. 10s. Fallers' earth steady; best lump fine impalpable ground, £7.; "Emerald" ground, 80s. Soda wolfram, tungstate of soda, and tungsten metal are in good demand but there is no change to report in prices. Chrome ore, best quality are in good demand, and prices firm. Antimony ore steady at £43. to £45. Asbestos very firm. Potters' lime smalls, £10. 10s. to £11. Calamine strontia sulphate (old) quiet. Limespar steady, especially for English manufacture G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluor spar Best quality scarce. Ferro-manganese in fair demand. Pilsen Spanish, £5.; best Ceylon lump at last quotations; Italian Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Black "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground £45. to £50. China clay steady, common, 18s. 6d.; good at 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog iron (of iron) scarce; finest quality 25s. to 30s.

MISCELLANEOUS CHEMICAL MARKET.

Business on the whole is quiet in all products of the alkali except in bleaching powder, for which the demand is still maintained and the price also at £8. nett at makers' works. Chlorate of soda and soda are still difficult to obtain and prices are firm respect 9d. and 10d. per lb. Soda ash in all qualities has rather a downward tendency, and more particularly so in the case of ammonia alkali. On the spot quotations are for the latter 1½d. to 1¾d. per f.o.b., and Leblanc ash 1½d. Caustic soda is without any disposition either for prompt or forward deliveries, prices being f.o.b. Tyne, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £8. 10s.; cream, 60%, £8. 5s., 10 ton lots and upward recovered sulphur the demand is still quiet, and owing to steady of Sicilian no immediate advance in price is looked for. In the case of copper there is no change. Potash, caustic and carbonate somewhat less request on open orders, but a fair amount of business is doing under contract. The trade in brown and grey acetates and in all other acetates is dull, but prices are without notable change. The demand for carbolic and cresylic acids is still maintained, apparently there is every prospect of a firm market for forward products. The trade in aniline oil and salt is below the average prices are only nominal. Generally, in all chemicals the market is dull owing to lack of orders, and this is more especially the case in chemicals used in the textile trades.

REPORT ON MANURE MATERIAL.

There continues to be a good demand for all kinds of manure material at hardening prices, and there has been a moderate doing in phosphates, but without much alteration in values.

The nearest value of 75/80% Florida phosphate rock in the United Kingdom is 8d. per unit, and for the Continent about 1 unit more is required. Peace River rock is quoted 7d. per unit, hot air dried South Carolina 6½d., but these prices do not business.

Cargoes of River Plate bones, afloat and near at hand, are about £4. 2s. 6d., but for those more distant or for shipment money would have to be taken. Crushed Kurrachee bones are selling, ex quay Liverpool, at £4. per ton on spot, and for shipment at £4. 1s. 3d. Bombay bone meal selling at £4. 5s. Liverpool, and that price required for anything afloat and near.

Nitrate of soda is firmly held at an advance; on spot 10s. the lowest for ordinary quality, and 10s. 3d. for refined. For arrived at port of call 10s. 1½d. to 10s. 3d. paid, and the closing value in this position. End April arrival may be had thing under 10s. per cwt. The position of this article seems to be strong, and should the fine weather continue, higher prices may confidently be expected.

blood is still enquired for, and for high test finely ground, per unit would have to be paid, in doubles f.o.b. Liverpool, not so much enquiry for unground River Plate, but 10s. to would probably be paid for any parcels arriving. Kainit is 7s. 6d. f.o.r. Garston in bags.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil continues dull, and owing to the almost complete of sales quotations are merely nominal. Olive is quiet and a rise in price for sales ex quay, but may be quoted at £35. to tun, according to quality. In Linseed the easing off of prices, and there has been a steady decline throughout the week; Liverpool makes can be had at 21s. 3d. to 22s. per cwt. in casks. Rape is slow of sale at last week's quotations. Cotton-verified refined is still easier in price, which may be quoted at 24s. 6d. per cwt., but the market to-day is firm. Castor oil of good demand, considerable sales having been made of good Calcutta at 2 $\frac{1}{2}$ d. ex quay, and 2 $\frac{1}{2}$ d. wanted for store. First French is offered at 2 $\frac{3}{4}$ d. to 2 $\frac{1}{2}$ d. per lb. Tallow sales are refusing present quotations, and sellers are firmly adhering to present price. Resin, common, and other grades fairly brisk week's quotations. Spirits of turpentine have varied between 26s. per cwt., but to-day are again easier at 25s. per cwt. in unaltered at last week's prices.

URS steady. Ochres: Oxfordshire, common, £10., medium, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. best, 70s., seconds, 50s., and common, 18s.; Irish, Devon- to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Turkish quiet. Devonshire, 50s. to 55s. White lead, red oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, medium, £10.; finest, £20. Zinc oxide, £22. to £23.

THE METAL MARKETS.

DON, WEDNESDAY.—Pig iron dull. Scotch warrants closed ½d. cash. Middlesbrough 34s. 4d. cash, and Hematite 45s. 6d. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at 3d. to £45. 13s. 9d. cash, and £45. 15s. to £46. 2s. 6d. months. Tin quiet. Straits closed at £95. 2s. 6d. to £95. 12s. 6d. Australian, £95. 12s. 6d. cash. English ingots, £98. rimer; Spanish, £9. 15s. to £9. 16s. 3d. English £10. to 6d. Silesian spelter: Ordinary, £17. 5s. Nickel, 1s. 9d. y, £42. Quicksilver: First hands, £6. 10s. second hands, 6d. Copper shares steady: Cape, 1 $\frac{1}{16}$ to 1 $\frac{1}{16}$. Copiapo, 2 $\frac{1}{16}$ Libiola, 3 to 3 $\frac{1}{4}$. Mason and Barry, 2 $\frac{1}{2}$ to 2 $\frac{3}{4}$; Rio Tinto, 15 $\frac{1}{16}$; Tharsis, 4 $\frac{3}{8}$ to 4 $\frac{3}{4}$; Namaqua, 1 to 1 $\frac{1}{4}$; Panulcillo,

VERHAMPTON, WEDNESDAY.—In executing orders before some ironworks are busy. New orders are somewhat restricted approach of the holidays, but the demand for sheets and ing iron, such as plates and large bars, is improving. Prices story. Sheets, doubles, £7. to £7. 5s.; galvanised corrugated £11.; tank plates, £7.; boiler plates £7. 10s. to £8. 10s. and gs quiet; Northampton, 40s. to 42s.; Derbyshires, 42s. to; Lincolns, 46s. 6d. to 47s. Coal slow; forge, 8s. to 9s.; 10s.

SGOW, WEDNESDAY.—Market steady, with fair business. Done at 40s. 8 $\frac{1}{2}$ d. 40s. 8d. and 40s. 8 $\frac{1}{2}$ d. cash, also at 40s. one month; closing with buyers at 40s. 8d. cash, and 40s. 10d. 10th; sellers ask ½d. more. Middlesbrough done at 34s. 6d. 10th; closing with buyers at 34s. 3 $\frac{1}{2}$ d. cash and 34s. 5 $\frac{1}{2}$ d. 10th; sellers ask 1d. higher. Hematite closes with buyers at cash and 45s. 8d. one month; sellers ask 1d. dearer.

TYNE CHEMICAL REPORT.

TUESDAY.

icals unaltered in price, though rather more business is doing. g powder is £8. 5s. per ton, and in demand. Soda crystals, 6d. per ton locally. Sulphur steadier. hing powder, softs, £8. 5s. per ton nett; hards, £8. 10s. 10; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per covered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash,

48%, £4. 12s. 6d. per ton, 52%, £4. 16s. 3d. per ton, 56%, £5. per ton; alkali, 36%, £5 per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 10d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28 10s.; hydrate of barium, £10. per ton nett.

South Durham salt is still 9s. per ton, f.o.b. Tees.

The coal trade seems firmer, orders being more plentiful. Best Northumbrian steam, 8s. 6d. to 8s. 9d. per ton; small steam, 3s. 3d. per ton; bunker coals weak, and prices vary from 6s. 3d. per ton for unscreened, up to 8s. 6d. for best Durham screened; gas coals fairly steady, 6s. 3d. to 6s. 6d. per ton; coke, unchanged at 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

With the exception of bleaching powder, as heretofore, the market for the staple chemicals continues very dull, although prices as a rule remain upheld, at least nominally. Almost the only instance of actual recession is that of saltcake, which is quoted a further 1s. 6d. down. Now that the European ice ports are about reopening, shipping chemicals are likely to take up a bit. Bleaching powder is quite as firm as ever, and makers are now said to be fully sold for the whole of their production on to July or August.

Sulphate of ammonia has been sold here for May-September forward delivery at £11. 5s. f.o.b. Leith, a price which makers regard as very satisfactory. The prompt position is still exceedingly strong, and towards the close of the week as high as £12. 10s. was paid, that being regarded as about the true prompt value to-day. The article is very difficult to be had, but on the other hand there are no buyers except those on compulsion.

The posture of affairs in mineral oils and paraffins is unchanged and late quotations are well upheld.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; saltcake, 26s. 6d.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2 $\frac{1}{2}$ %, Liverpool; bichromate of potash, 4 $\frac{1}{2}$ d. nett, for Scotch and English deliveries (for export 4 $\frac{1}{4}$ d. nett f.o.b. Glasgow); bichromate of soda, 3 $\frac{1}{4}$ d., nett, for Scotch and English deliveries (for export 3 $\frac{1}{2}$ d. nett f.o.b. Glasgow); chlorate of potash, 9 $\frac{1}{4}$ d., less 5% Liverpool; nitrate of soda, 10s. 3d.; sulphate of ammonia, spot £12. 10s. f.o.b. Leith; salammoniack, first and second white, £35. and £33., less 2 $\frac{1}{2}$ % any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1 $\frac{7}{8}$ d. per lb.; paraffin wax, 120°, semi-refined, 2 $\frac{3}{4}$ d.; paraffin oil (burning) 4 $\frac{1}{4}$ d. to 5 $\frac{1}{4}$ d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 86 $\frac{1}{2}$ °, £3. 10s., to £3. 15s., 88 $\frac{1}{2}$ °, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 10,079 bags.

New Companies.

Electrolytic Separation Syndicate, Ltd.—CAPITAL £25,000. in £1. shares. This company has been formed to acquire and work the patent of C. T. J. Vautin, for the electrolytical separation of the bases of salts and compounds of the same from saline solutions. The subscribers to the memorandum of association are:—R. Andrews, 153, Fenchurch-street, E.C., merchant; H. L. Ballett, 42, Old Broad-street, E.C., secretary; J. E. F. Wells, Clifton Hill, S. E., solicitor's clerk; F. Rudd, Hackney-road, N.E., clerk; F. H. Wood, Peckham, clerk; C. Vautin, 42, Old Broad-street, E.C., metallurgical chemist; A. Motham, Stoke Newington, estate manager.

Kremnolite Co., Ltd.—CAPITAL £30,000. in shares of £5. each. The object of this company is to manufacture and deal in chemical compositions, especially compositions for treating and purifying sewage, etc. The subscribers to the memorandum of association are:—J. Petrie, Rochdale, machinist; B. Heape, Rochdale, wool mer-

chant; J. J. Baidley, 13a, Pall Mall, merchant corn miller; C. A. Burghardt, Alderley, analytical chemist; W. O. Steintal, Rochdale, physician; J. B. Petrie, Carlton, near Manchester, chemical engineer; F. W. Petrie, Rochdale, machinist.

Stainsby and Lyon, Ltd.—CAPITAL £75,000. divided into 250 preference shares of £100. each, and 5,000 ordinary shares of £10. each. This company has been formed to purchase and acquire the business hitherto carried on by J. G. Lyon under the firm of Stainsby and Lyon at the Aire Tar Works, Knottingley, Yorkshire, and to manufacture and deal in chemicals, tar and naphtha distillers, and coal carbonisers. The subscribers to the memorandum of association are:—J. G. Lyon, Pontefract, tar distiller, C. Lyon, Pontefract, married woman; E. B. Lyon, Pontefract, spinster; J. Harker, Knottingley, foreman; T. Holliday, Pontefract, chemist; J. P. Barker, Pontefract, clerk; H. Whitfield, Leeds, chartered accountant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in the Purification of Sewage. G. Webb, G. Webb, jun., and A. E. Burton. 4,821. March 6th.
Artificial Fuel. T. Macneil. 4,844. March 6th.
Obtaining Chlorates of the Alkalies or of the Alkaline Earth Metals by Electrolysis. W. T. Gibbs and S. P. Franchot. 4,869. March 7th.
Pigments Containing Oxide of Zinc and other Oxides of Metals. A. P. Laurie. 4,870. March 7th.
Electric Batteries. N. Rolland. 4,871. March 7th.
Machinery for Forcing Air or other Gases. J. C. R. Oles and W. T. Gould. 4,873. March 7th.
Cleaning Tin and Terne Plates. W. Williams and W. G. Morris. 4,906. March 7th.
Utilization of Chlorides of Sodium and Potassium to Obtain Useful Products. T. Parker and A. E. Robinson. 4,920. March 7th.
Thickening Linseed Oil. R. Hadden. 4,935. March 7th.
Antiseptic and Disinfectant Material. C. R. A. Wright. 4,950. March 7th.
Photographic Developers. A. Pitt. 4,951. March 7th.
Treating Sewage and other Foul Waters. W. H. Daniels. 4,972. March 7th.
Production of Sulpho Acids of the Naphthalene Series and Colouring Matters therefrom. H. E. Newton. 4,979. March 7th.
Improved Filtering Medium. G. J. Kick and J. Wright. 4,990. March 7th.
Preventing the Bursting of Gas Engine Water Jackets by the Freezing of the Water in the Pipes. E. Rollason. 5,005. March 8th.
Colouring Matters. C. D. Abel. 5,039. March 8th.
Removing the Heavy Vapours of Solvents. The Patent Syndicate Lighting Oil Extractor Company, Ltd., and H. A. A. Dombrian. 5,040. March 8th.
Fire Extinguishing Apparatus. J. G. Lorrain. 5,065. March 8th.
Apparatus for Filtering Liquids. J. Feraud. 5,073. March 8th.
Destroying Sewer Gas and Smoke. J. J. Hollingworth. 5,095. March 9th.
Utilization of Waste Products in the Manufacture of Portland Cement and Precipitated Carbonate of Lime. J. Hill. 5,132. March 9th.
Production of Disazo Dye-stuffs from γ Amidonaphthol Sulpho Acid. S. Pitt. 5,141. March 9th.
Production of Alkali by Electrolysis. J. Hargreaves and T. Bird. 5,197. March 10th.

Disinfecting Rags, Wool, and Fibrous Material Contained in Packed Bales. J. Illingworth. 5,205. March 10th.
Extracting Gold and Silver Ores. J. S. McArthur. 5,212. March 10th.
Preparation of Piperazine. S. Pitt. 5,205. March 10th.
Soap Marking Apparatus. E. Howat. 5,274. March 11th.
Extraction of Tin and Copper. J. A. Coombes. 5,313. March 11th.
Manufacture of Piperazine and its Salts. H. E. Newton. 5,320. March 11th.
Improvements in Kneading and Mixing Machines. H. Pfeider. March 11th.
Evaporating and Concentrating Sugar Juice, Chemical Solutions. E. Furness. 5,334. March 11th.

GERMAN PATENTS for week ending MARCH 16th

Specially abstracted by Dr. H. Zerener, civil engineer, Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to answer queries from the Journal gratis.

12 G. 7,866. Preparation of iron free aluminium fluoride from containing iron. Grabau's Aluminiumwerke, Trotha bei Halle.
22 G. 7,358. Preparation of paint for specific uses. Hermann Kottbus.
22 L. 6,596. Orange dyestuffs of the aridine series. (Addition to 5,878 Kl. 22.) A. Leonhardt and Co., Mülheim i. H.
22 C. 3,837. Converting azo dyes from α_1, α_4 diamido-naphthyl disulphonic acid into the analogous dyes from α_1, α_4 amido- β_2, β_3 disulphonic acid. L. Cassella and Co., Frankfurt-a-Main.
22 C. 3,845. Converting azo dyes from α_1, α_4 amido-naphthyl disulphonic acid into the analogous dyes from α_1, α_4 dioxyline β_2, β_3 disulphonic acid. L. Cassella, Frankfurt-a-Main.
23 F. 3,562. Purifying fats and oils. K. F. Töllner, 44. Hameln Bremen.
75 K. 9,967. Mercury cathode for electrolytical purposes. Hallein bei Salzburg.
12 H. 12,851. Iodine derivatives of eugenol. Dr. F. von Heyden, in Radlbeul, Dresden.
12 N. 2,725. Preparation of xylenesalol. (Addition to Patent No. 21 M. von Neucki, Berlin, and Dr. F. von Heyden, Nachfolger in Dresden.
22 F. 5,965. Preparation of phenyl and tolylnaphthylaminosulpho Farbenfabriken vorm. Friedr. Bayer and Co., Elberfeld.
40 F. 6,258. Carbon electrode for electrolysis. Hans Heinrich Frei Schweiz.
78 K. 9,628. Preparation of cellulose. Soc. Kallivoda von Falk Vinkovce Kroatein, and A. M. Böhm, 2 Rathhaus-strasse, Vienna.

Gazette Notices.

PARTNERSHIP DISSOLVED.

W. J. HUNTER and J. GAW, under the style of Hunter and Gaw, Liverpool dip manufacturers.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

BERTRAM, WILLIAM, Cardiff, oil and grease merchant.
PASSMORE, JAMES HENRY, Tottenham Court-road, W., chemist.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 11th.

Acetate of Lime—

France, 511 pkgs. H. Lorenz
U. States, 550 Lister & Lime

Acetic Acid—

Holland, 30 pkgs. Philipps & Graves
" 118 A. & M. Zimmermann

Acetone—

Holland, 106 pkgs. Beresford & Co.

Alkali—

France, 865 c. Arnati & Harrison

Alum—

Holland, 28 pkgs. Ohlenschläger Bros.
Germany, 14 Beresford & Co.

Alumina—

Holland, 68 pkgs. R. W. Greeff & Co.

Alumina Sulphate—

Germany, 100 pkgs. Tough & Henderson

Aluminium—

France, £100 Major & Field
Belgium, 91 H. R. Merton & Co.

Antimony—

Australia, 43 t. Lark, Sons, & Co.

Arsenic—

Germany, 8 pkgs. L. & I. D. Jt. Co.

Asbestos—

Holland, £8 G. Rahn & Co.
France, 32 Mory & Co.

Barium Chloride—

Germany, 22 pkgs. Petri Bros.

Barytes—

Germany, 69 cks. A. Zumbeck & Co.
" 19 S. H. Willoughby
" 21 W. Harrison & Co.
Italy, 3 O'Hara & Hoar
Holland, 46 Magee, Taylor, & Co.
Belgium, 133 W. Harrison & Co.
Germany, 57 W. Fenton

Borax—

E. Indies, 20 pkgs. L. & I. D. Jt. Co.

Caoutchouc—

E. Indies, 13 c. Lewis & Peat
France, 50 Brookes & Green
Madagascar, 65 Proctor Bros.
" 411 L. & I. D. Jt. Co.
E. Indies, 34 Clarke & Smith
Zanzibar, 8 Anderson, Weber, & Smith
" 32

France, 12
Zanzibar, 81
E. Indies, 35

Castor Oil—

E. Indies, 500 cs. Messrs.

Caustic Potash—

France, 60 c. Beresford

Chemicals (otherwise used)

Germany, 3 pkgs. L. & I.
" 56 A. & M. Zimmermann
" 58 Doz.
" 7 Hirma, P.
Germany, 65
Holland, 3 Phillips

Chloride of Lime—
France, 80 pkgs. Mead, Son, & Co.

Cream of Tartar—
Italy, 12 pkgs. Thames S. T. & L. Co., Ltd.
France, 25 W. C. Bacon & Co.
" 12 B. & F. Wf. Co., Ltd.
" 10 M. Ashby, Ltd.

Dextrine—
Germany, 100 pkgs. Hernu, Peron, & Co.

Dyestuffs—

Anthracene
Holland, 2 pkgs. Burt, Boulton, & Co.

Argols
Italy, 58 pkgs. Thames S. T. & L. Co., Ltd.

Cochineal
Canaries, 6 pkgs. Swanston & Co.

" 4 Kuhnner, Henderson, & Co.

" 4 Sperling & Williams

" 13 Johnson, Hicks, & Co.

Coch
Italy, 350 pkgs. R. G. Hall & Co.

Rangoon, 500 G. F. Galbraith

Divi Divi
E. Indies, 26 pkgs. L. & I. D. Jt. Co.

" 150 Walker, Munzie, & Co.

Extracts
Belgium, 25 pkgs. L. J. Levinstein & Sons

Germany, 12 T. H. Lee

France, 95 Bailey & Leatham

" 370 L. J. Levinstein & Sons

Gambier
E. Indies, 1,111 pkgs. Brinkmann & Co.

" 478 Hoare, Wilson, & Co.

" 175

" 5,153 L. & I. D. Jt. Co.

" 717 Williams, Torrey, & Co., Ltd.

" 174 J. Greig

" 253 Adamson, Gilfillan, & Co.

" 843 E. Boustead & Co.

" 225 S. Figgis & Co.

Indigo
E. Indies, 6 chts. Wrightson & Co.

" 5 Elkan & Co.

" 50 Forbes, Forbes, & Co.

" 3 Binney & Co.

" 154 L. & I. D. Jt. Co.

Madder
Holland, 6 pkgs. Williams, Torrey, & Co., Ltd.

Myrabolams
E. Indies, 380 pkgs. Beresford & Co.

" 1,334 J. Graves

" 333 Darling Bros.

" 638 L. & I. D. Jt. Co.

Orchella
Ceylon, 4 pkgs. Prop. Sun Wf.

Sumac
Italy, 250 pkgs. J. Graves

" 1,025 J. Kitchin, Ltd.

Tanners' Bark
Belgium, 16 t. G. S. N. Co.

" 32 Leach & Co.

France, 30 Beresford & Co.

Natal, 16 L. & I. D. Jt. Co.

Turneric
China, 108 pkgs. Melchers, Runge, & Co.

Valonia
A. Turkey, 10 t. Fisher, King, & Co.

Mauritius, 31 Hicks, Nash, & Co.

Dyestuffs (otherwise undescribed)
U. States, 7 pkgs. H. Davies

France, 5 Hernu, Peron, & Co.

Farina—
Holland, 500 pkgs. R. G. Hall & Co.

" 50 Hicks, Nash, & Co.

" 100 J. Anderson & Co.

Germany, 50 Seaward Bros.

Glucose—
U. States, 900 pkgs. 900 c. Boake, Roberts, & Co.

" 900 901 c. L. Sutro & Co.

France, 100 300 Trier, Meyer, & Co.

Germany, 8 48 J. Barber & Co.

France, 200 200 Barrett, Tagant, & Co.

U. States, 800 800 Humphrey & Co.

" 250 500 L. & I. D. Jt. Co.

" 250 250 Anderson, Weber, & Co.

" 600 1,348 R. G. Hall & Co.

" 250 250 Prop. Chmbln's Wf.

" 3,001 3,001 Fellows, Morton, & Co.

" 500 500 Barrett, Tagant, & Co.

Guano—
U. States, 1,400 t. Anglo Contl. G. Wks.

Germany, 1 B. & F. Wf. Co., Ltd.

Lead Acetate—
Holland, 38 pkgs. F. Boehm

Manganese—
Japan, 56 t. Union L. Co., Ltd.

Australia, 207 Harrold Bros.

Manure—
France, 325 t. J. Burnett & Sons

E. Indies, 21 G. H. Wilson & Sons

Methyl Alcohol—
Germany, 7 cks. Lister & Biggs

Holland, 10 dms. Stein Bros.

Mica—
Ceylon, £500 E. Davis & Co.

U. States, 280

" 10 Tingle, Jacobs, & Co.

E. Indies, 45 W. M. Smith & Sons

Ochre—
Holland, 2 cks. Philipps & Graves

France, 87 J. & T. Seddon

" 66 Stobbs, Wilson, & Co.

Painters' Colours—
France, 5 pkgs. Bennett S. S. Co., Ltd.

Germany, 20 Spies Bros. & Co.

Belgium, 24 Arnati & Harrison

Germany, 10 Philipps & Graves

" 6 brls. C. S. Lovell

" 2 cks. Kaul & Haenlein, Ltd.

" 12 T. H. Lee

" 1 Becker & Ulrich

" 4 G. S. N. Co.

France, 2 Hernu, Peron, & Co.

Holland, 3 Philipps & Graves

Belgium, 18 J. L. Lyon & Co.

Germany, 1 T. Palmer

Holland, 2 Craven & Co.

U. States, 10 pkgs. Roth, Schmidt, & Co.

" 100 R. Baelz & Co.

Germany, 4 J. Melvin

" 4 L. & I. D. Jt. Co.

France, 5 Herrmann & Co.

" 26 Flageolet & Co.

" 1 Bennett S. S. Co., Ltd.

Paraffin Wax—
U. States, 2,165 pkgs. 9 cs. J. H. Usmar & Co.

" 139 brls. C. Ogleby & Co.

" 120 Prod. Brokers' Co.

Phosphate Rock—
France, 254 t. A. Hunter & Co.

Belgium, 115 Anglo Contl. G. Wks.

Holland, 50 Odams Chemical M. Co.

" 50 Anglo Contl. G. Wks.

Plumbago—
Ceylon, 56 cks. Marshall & French

" 92 brls. R. G. Hall & Co.

" 263 J. Thredder, Son, & Co.

Cochin, 190 75 cks. B. Galloway

Holland, 15 pkgs. T. H. Lee

Belgium, 37 J. Forsey

Ceylon, 1,915 Beck & Pollitzer

Potassium Carbonate—
France, 136 c. L. & I. D. Jt. Co.

Germany, 5 pkgs. "

Potassium Chloride—
Germany, 100 pkgs. F. W. Berk & Co., Ltd.

Potassium Oxymuriate—
Belgium, 68 pkgs. G. Boor & Co.

Holland, 100 "

Potassium Sulphate—
France, 191 pkgs. Petri Bros.

Germany, 5 Prop. Dowgate Dk.

Pyrites—
Spain, 2,923 t. C. Tennant, Sons, & Co.

" 1,113 Societe Commerciale

Quicksilver—
Spain, 9,002 flks. N. M. Rothschild & Sons

Rosin—
U. States, 69 brls. Moore & Hole

Saltpetre—
Germany, 23 cks. Brown & Elmslie

" 70 T. Merry & Son

E. Indies, 225 bgs. Ralli Bros.

Sodium Acetate—
France, 27 pkgs. S. F. Waters & Co.

Stearine—
Holland, 113 bgs. H. Hill & Sons

Sulphur—
Italy, 10 t. J. Kitchin, Ltd.

" 16 Union L. Co., Ltd.

" 50 Soundy & Sons

" 10 Galbraith, Pembroke, & Co.

" 12 G. Boor & Co.

Talc—
France, £50 G. G. Blackwell

Tallow—
U. States, 17 cks. R. Tucker & Co.

Sydney, 40 Goad, Rigg, & Co.

P. Arenas, 48 J. Hoare & Co.

Germany, 48 Dyster, Nalder, & Co.

Sydney, 7 J. Greig & Co.

" 274 Dangar, Grant, & Co.

" 377 Hoare, Wilson, & Co.

" 28 Hicks, Nash, & Co.

" 93 Pillow, Jones, & Co.

Sydney, 108 Home & Co.

Melbourne, 152 Elkan & Co.

" 135 J. Owen

Tallow and Stearine—
U. States, 63 pkgs. W. W. Young

Tartaric Acid—
France, 4 pkgs. B. & F. Wf. Co., Ltd.

Italy, 40 M. D. Co.

Holland, 4 F. C. Devon & Co.

" 29 B. & F. Wf. Co., Ltd.

Turpentine—
Austria, 2 cks. Major & Field

Germany, 5 brls. H. Lambert

Ultramarine—
Holland, 2 cks. Philipps & Graves

Belgium, 8 Leach & Co.

Holland, 13 pkgs. Thames S. T. & L. Co., Ltd.

" 10 Haefner, Hilpert, & Co.

Belgium, 21 W. Harrison & Co.

Germany, 35 G. Steinhoff

Verdigris—
France, 5 pkgs. B. & F. Wf. Co., Ltd.

Vermillion—
Hong Kong, 20 pkgs. T. Merry & Son

White Lead—
Holland, 100 cks. Burrell & Co.

France, 49 W. Harrison & Co.

Holland, 15 F. Pryor

" 48 T. & W. Farmiloe

" 36 A. & M. Zimmermann

" 12 Comp. Maritime Belge

Germany, 70 M. Ashby, Ltd.

Austria, 16 cs. W. Adolph & Co.

Holland, 29 G. Farmiloe & Sons

Germany, 29 Petri Bros.

" 19 N. J. Fenner & Co.

" 29 T. & W. Farmiloe

Zinc Oxide—
Germany, 39 cks. Beresford & Co.

Holland, 625 Soundy & Sons

" 185 brls. M. Ashby, Ltd.

" 50 pkgs. Props. Dowgate Dk.

" 2 brls. Comp. Maritime Belge

Germany, 90 M. Ashby, Ltd.

" 25 cks. J. Matton

LIVERPOOL.

Week ending March 9th.

Asbestos—
Portland, 360 bgs. Amr. Asbestos Co.

Barytes—
Bremerhaven, 23 cks.
Antwerp, 10 J. T. Fletcher & Co.
In transit, 203

Castor Oil—
Calcutta, 1,500 cs. Ralli Bros.

Chemicals (otherwise undescribed)
Marseilles, 8 brls.
Rotterdam, 7 cks.

Chrome Ore—
Baltimore, 25 cks. P. R. McQuie & Son

Colours—
Hamburg, 8 cks.
In transit, 60 cs. 85 pkgs.
Antwerp, 10 J. T. Fletcher & Co.
Rotterdam, 11 19 cks.

Cream of Tartar—
Barcelona, 5 cks.
Tarragona, 6

Dyestuffs—
Algarobilla
Valparaiso, 480 bgs.

Annatto
Bordeaux, 12 cks.

Divi Divi
Amsterdam, 404 bgs. Brown, Geveke, & Co.

Extracts
Colon, 35 cs. A. Jimenez & Co.

Philadelphia, 75 brls.

Baltimore, 50 Mucklow & Co.

" 20 R. Schlosser & Sons

" 5 Henry, Peek, & Co.

" 25

New York, 5 20 bks. F. Ree

Fustic
Bremerhaven, 3,688 ps.

Tampico, 1,870

Gambier
Amsterdam, 333 bgs.

Singapore, 578 6,300 bks.

Indigo
Calcutta, 28 chts. J. S. Morgan & Co.

" 28 Brown Bros. & Co.

" 98

Madder
Marseilles, 10 cks. A. Behrends

" 1 Archer Bros. & Reid

Myrabolams
Bombay, 194 bgs.

Orchella
Lisbon, 494 bgs. A. Barbosa & Co.

" 12 bks. Edwards Bros.

Saffron
Barcelona, 1 cs. Bahr, Behrend, & Ross

Sumac
Venice, 50 bks.

Turneric
Calcutta, 3 bgs.

Valonia
Corfu, 183 bgs.

Patras, 1,257 C. G. Papayanni & Jeremias

" 10 Barff & Co.

" 462 G. K. Mozales

" 297

Smyrna, 926 kts. S. Vivante & Son

" 752 P. T. Apostulo

" 952 Essayan, Shahum, & Co.

" 1,379 D. A. Galatti & Co.

Litharge — Rotterdam, 19 cks.	
Manganese — Yokohama, 173 l. Kobe, 300	
Mineral White — Trieste, 100 bgs. Pazzi Industrie	
Nitrate — Rotterdam, 15 cks.	
Ochre — Rouen, 79 cks. Co-op. W'sale Society, Ltd.	
Paint — Baltimore, 14 brls. G. F. Chutten " 13 W. Johnston & Co., Ltd. Boston, 5 crts. J. Henderson	
Paraffin Scale — Philadelphia, 100 brls.	
Phosphate — Ghent, 250 bgs. J. T. Fletcher & Co. " 500	
Pitch — Amsterdam, 54 cks.	
Potash — Rouen, 52 cks. Co-op. W'sale Society, Ltd. Dunkirk, 14 8 dms. Hamburg, 11	
Potash Salts — Hamburg, 102 bgs.	
Potassium Carbonate — Hamburg, 6 cks.	
Pyrites — Huelva, 4,424 t. Matheson & Co.	
Rosin — Bayonne, 2,479 cks. R. J. Francis & Co. Ceara, 47 bgs. Baltimore, 30 brls. Wilmington, N.C., 1,011 brls. J. Killiat & Co. Bordeaux, N.C., 953 Hamburg, 235 cks. Hamburg, 12 cs.	
Salt — Antwerp, 1 ck. J. T. Fletcher & Co.	
Saltpetre — Calcutta, 423 bgs. Hamburg, 9 cks. 21 kgs.	
Silver Sulphate — Colon, 8 cs. S. Hudson	
Soap — Marseilles, 20 cs. Bostock & Co. Bari, 20 Philadelphia, 2	
Stearine — Antwerp, 25 bgs.	
Tallow — Baltimore, 180 tcs. Zarate, 750 cks. B. Ayres, 100	
Tar — Wilmington, N.C., 1,559 brls.	
Tartar — Bordeaux, 13 cks.	
Tartaric Acid — Rotterdam, 20 cks.	
Ultramarine — Bremerhaven, 28 cks. Rotterdam, 4 4 cs. Hamburg, 12 brls.	
Verdigris — Bordeaux, 2 cks.	
Waste Salt — Hamburg, 225 t. 204 bgs.	
White Lead — Rotterdam, 64 cks. Ghent, 10	
Zinc Oxide — Antwerp, 76 brls. J. T. Fletcher & Co. " 198 8 cs. Rotterdam, 75 Hamburg, 15	

HULL.

Week ending March 11th.

Acetate — New York, 446 bgs. Wilson, Sons & Co., Ltd.	
Alkali — Flushing, 4 cks. Wilson, Sons & Co., Ltd.	

Arsenic — Hamburg, 52 cks. Wilson, Sons & Co., Ltd.	
Barytes — Rotterdam, 41 cks. Antwerp, 16 Hamburg, 10 bgs. G. Lawson & Sons Bremen, 44 cks. H. F. Pudsey " 64	
Caoutchouc — Hamburg, 13 cs. C. M. Lofthouse & Co.	
Carbonic Acid Gas — Rotterdam, 25 brls. G. Lawson & Sons	
Chemicals (otherwise undescribed) — Hamburg, 4 pks. Wilson, Sons & Co., Ltd. Bremen, 5 cs. Veltmann & Co. Dunkirk, 1 ck. Johnson Bros. Dunkirk, 90 pks. Wilson, Sons & Co., Ltd. Antwerp, 23	
Citrochloric Acid — Rotterdam, 2 cks. W. & C. L. Ringrose	
Colours — Flushing, 34 cks. 55 cs. Wilson, Sons & Co., Ltd. Rotterdam, 4 pks. 18 cks. 4 cs. Hutchinson & Son Hamburg, 5 cks. Ghent, 20 Bremen, 4 Veltmann & Co. Rotterdam, 43 pks. W. & C. L. Ringrose " 1 ck. 5 pks. G. Lawson & Sons Antwerp, 5 cs. Wilson, Sons & Co., Ltd. " 2 brls.	
Cream of Tartar — Rotterdam, 1 ck. G. Lawson & Sons	
Dextrine — Stettin, 250 bgs. Wilson, Sons & Co., Ltd.	
Dyestuffs — Alizarine Flushing, 68 cks. 12 cs. Wilson, Sons & Co., Ltd. Rotterdam, 45 pks. W. & C. L. Ringrose Madder Rotterdam, 2 cks. Hutchinson & Son Sumac Palermo, 700 bgs. Wilson, Sons & Co., Ltd. " 200	
Farina — Hamburg, 200 bgs. Wilson, Sons & Co., Ltd. New York, 10 brls. Antwerp, 50 bgs. Bailey & Leatham Haringen, 500 Hamburg, 100 L. & N. Rly. Co. Ghent, 50 " 106 bks. Wilson, Sons & Co., Ltd. Stettin, 200 bgs.	
Glucose — Hamburg, 400 pks. 12 cks. New York, 400 brls. Stettin, 950 bgs. 37 cks.	
Guano — Aalesund, 1 kg. Brekke & Howlid	
Kaolin — Rotterdam, 268 bgs.	
Manure — Ghent, 165 t.	
Ochre — Marseilles, 20 cks. Wilson, Sons & Co., Ltd.	
Paint — New York, 50 cs. Wilson, Sons & Co., Ltd.	
Phosphate — Antwerp, 50 t. Bailey & Leatham	
Plumbago — Genoa, 100 bgs. Hamburg, 10 cks.	
Potash — New York, 5 cks. Wilson, Sons & Co., Ltd. Rotterdam, 10 cks. W. & C. L. Ringrose	
Rosin — Savannah, 2,205 brls. Antwerp, 24 bgs. Wilson, Sons & Co., Ltd. Stettin, 35	

Saltpetre — Rotterdam, 135 bgs. Hutchinson & Son Hamburg, 2 cks.	
Size — Rotterdam, 24 cs. Hutchinson & Son	
Soap — Marseilles, 43 cs. Wilson, Sons & Co., Ltd. Bari, 115	
Soda — Amsterdam, 1 ck. W. & C. L. Ringrose	
Sodium Nitrate — Hamburg, 200 kgs. Wilson, Sons & Co., Ltd.	
Sulphate — Hamburg, 17 cks. Wilson, Sons & Co., Ltd.	
Sulphur — Catania, 907 bgs. Wilson, Sons & Co., Ltd. " 50 l. 30 cks. 600 bgs.	
Terpentine — Savannah, 1,500 brls.	
Ultramarine — Rotterdam, 1 ck. 13 cs. Hutchinson & Son Bremen, 4 cks. Veltmann & Co. " 7	
Varnish — New York, 5 brls. 28 pks. Wilson, Sons & Co., Ltd.	
Waste Salt — Hamburg, 806 bgs.	
White Lead — Rotterdam, 79 cks. Hutchinson & Son " 3 G. Holmes & Co. Antwerp, 71 Bailey & Leatham Rotterdam, 19 Hanger, Watson & Harris " 12 A. Sanderson & Co.	
Zinc Oxide — Rotterdam, 50 brls. Hutchinson & Son " 12 cks. G. Lawson & Sons Hamburg, 1 ck.	

GLASGOW.

Week ending March 16th.

Alum — Rotterdam, 20 cks. J. Rankine & Son	
Arachide Oil — Rotterdam, 9 cks. J. Rankine & Son	
Barytes — Antwerp, 61 cks. Rotterdam, 69	
Castor Oil — Antwerp, 40 cks.	
Chemicals (otherwise undescribed) — Hamburg, 4 cs.	
Cobalt Ore — Noumea, 2 t. 8 c. Nickel & Co.	
Colours — Rotterdam, 10 cks. G. & J. Boyd Amsterdam, 1 cs. Antwerp, 6 cks. Rotterdam, 21 pks. Hamburg, 9 cks. 1 cs.	
Cream of Tartar — Marseilles, 30 cks.	
Dextrine — Stettin, 50 bgs.	
Dyestuffs — Alizarine Rotterdam, 125 brls. J. Rankine & Son 40 cks. Madder Marseilles, 5 cks.	
Farina — Stettin, 200 bgs. Hamburg, 20	
Glucose — New York, 100 brls.	
Ochre — Marseilles, 247 cks. 28 brls.	
Paint — New York, 2 brls. Rotterdam, 14 kgs. J. Rankine & Son Hamburg, 1 bx.	
Paraffin Scale — New York, 316 brls.	
Phosphate — Ghent, 1,000 bgs.	
Potassium Prussiate — Hamburg, 33 cks.	

Pyrites — Huelva, 1,724 t. Thorne & Co.	
Rosin — Baltimore, 750 brls. J. & H. H. " 250 " 1,365	
Stearine — Marseilles, 25 bgs. J. Rankine Rotterdam, 14 cks.	
Sulphur — Seville, 1,250 t. The Seville Co.	
Tin Oxide — Rotterdam, 1 ck.	
Waste Salt — Hamburg, 113 cks.	
White Lead — Rotterdam, 56 cks. J. Rankine Antwerp, 4	
Zinc Oxide — New York, 202 brls.	
Zinc White — Rotterdam, 100 cks. J. Rankine Stettin, 25 brls.	

TYNE.

Week ending March 16th.

Acid — Antwerp, 7 cs. Tyne & Co.	
Alum Earth — Hamburg, 19 cks. Tyne & Co.	
Colours — Hamburg, 20 cks. Tyne & Co.	
Cryolite — Elsinore, 26 cs.	
Farina — Hamburg, 20 bgs. Tyne & Co.	
Glucose — New York, 223 brls. Tyne & Co.	
Manganese — Gothenburg, 17 cks.	
Pyrites — Huelva, 2,452 t. Tyne & Co.	
Size — Hamburg, 4 pks. Tyne & Co.	
Sodium Nitrate — Antofagasta, 8,000 bgs. Tyne & Co.	

GOOLE.

Week ending March 16th.

Acetic Acid — Rotterdam, 1 cs.	
Alizarine — Rotterdam, 16 pks. 73 brls.	
Alkali — Dunkirk, 29 cks.	
Caoutchouc — Boulogne, 5 cks.	
Dyestuffs (otherwise undescribed) — Boulogne, 24 brls. 7 cs. 9 pks.	
Farina — Hamburg, 1,900 bgs. Delfsryhl, 975	
Potash — Dunkirk, 46 cks.	
Pyrites — Seville, 1,100 t.	
Saltpetre — Rotterdam, 100 bgs.	
Soda — Rotterdam, 60 brls.	
Sodium Silicate — Rotterdam, 13 cks.	
Waste Salt — Hamburg, 1,296 cks.	

GRIMSBY.

Week ending March 16th.

Caoutchouc — Rotterdam, 4 pks.	
Chemicals (otherwise undescribed) — Hamburg, 28 pks.	
Farina — Rotterdam, 4 Antwerp, 10 cks.	
Glucose — Hamburg, 100 bgs.	
Size — Antwerp, 3 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			LIVERPOOL.		
Week ending March 15th.			Week ending March 15th.		
Acetic Acid—			Acetic Acid—		
Dunedin, 1 t. 6 c.	£53		Messina, 8 t. 3 c.	£93	
Acetic Acid and Ammonia—			Alkali Waste—		
Bombay, 7 cs.	£20		Stettin, 107 t. 11 c.	£403	
Alkalis—			Alum—		
Kingston, 8 drs.	£10		Calcutta, 25 t. 3 c. 2 q.	£110	
Rio de Janeiro, 2 cs.	12		Sydney, 2 15	16	
Bombay, 14 c.	15		Aran, 3	18	
Hong Kong, 6	15		Barcelona, 9 15	61	
Shanghai, 12 24 cbs	105		Brantford, Ont., 1	5	
Alkali—			Rio de Janeiro, 10	3	
Townsville, 6 c.	£10		Lisbon, 15 16	88	
Kingston, 10	5		Havana, 23 cks.	30	
San Diego, 35 t. 5	215		B. Ayres, 8 19	50	
Alum—			Alexandria, 2 19	16	
Rio de Janeiro, 27 cks.	£20		Bahia, 5	1 1/2	
Aluminous Cake—			Valparaiso, 5 10	33	
Bordeaux, 5 t. 4 c.	£25		Alumina Sulphate—		
Ammonia (Liquid)—			Boston, 14 t. 10 c. 2 q.	£70	
Cadiz, 12 dra.	£15		Ammonium Carbonate—		
Ammonium Carbonate—			Genoa, 2 t. 5 c.	£83	
Dunkirk, 10 c.	£13		Naples, 6 kg.	1 5	
Paris, 4 t. 9	116		H. Ayres, 2 10	70	
Melbourne, 20 cs.	30		Antwerp, 3	5	
Ammonium Chloride—			Copenhagen, 17 1 1/2	25	
Constantinople, 2 t. 12 c.	£82		Bordeaux, 15	21	
Rotterdam, 19 cks.	105		Venice, 1 1	36	
Dusseldorf, 12	63		Marseilles, 5 brls.	£14	
Hamburg, 45	225		Ammonium Chloride—		
Ammonium Sulphate—			Madras, 1 t. 4 c. 1 q.	£38	
Jamaica, 8 t.	£84		B. Ayres, 11 2	20	
St. Lucia, 2 7 c.	24		Havre, 1 1 3	20	
Torrevieja, 50 10	556		Trieste, 1 1 2	36	
Barbadoes, 45 1	483		Ammonium Sulphate—		
Ghent, 150 16	1,600		Antwerp, 22 t. 4 c.	£264	
Cherbourg, 10	105		Hamburg, 2	20	
Demerara, 6	70		Ghent, 35 8	385	
Barbice, 9	105		Rio de Janeiro, 10	550	
Martinique, 30	375		Baltimore, 49 1 2 1/2	5	
Valencia, 300	3,300		St. Navaire, 20	200	
Hamburg, 305	3,355		New York, 152 17 2	1,581	
Ostend, 195 11	2,132		Valencia, 81 4 1	893	
Ammonia—			Barbadoes, 102 7	1,132	
Lyon, 1 t.	£15		Gr. Canary, 14	159	
Canterbury, 1	15		Teneriffe, 1	11	
Borax—			Rouen, 10	120	
Sydney, 10 c.	£15		Dunkirk, 50	500	
Lytelton, 5	5		Antimony—		
New York, 7 cs.	176		Shanghai, 1 ck.		
Rio de Janeiro, 6	9		Bombay, 2 cks.		
Canterbury, 5	8		Asbestos—		
Barbelle Acid—			La Plata, 1 cs.		
Trieste, 66 cks.	£373		Gaboon, 1		
Libra, 24	93		Barium Chloride—		
Hamburg, 8 drs.	56		Hamburg, 1 t. 9 c.	£117	
Cape Town, 36 14 c.	51		Bleaching Powder—		
Colombo, 11	25		Baltimore, 61 cks.		
Sydney, 10	18		Boston, 635		
Rotterdam, 24	76		Calcutta, 151 cs.		
Barbelle Soda—			Ghent, 109		
Alga Bay, 1 t. 7 c.	£44		Hamburg, 6 brls.		
Dunedin, 10	14		Havre, 25		
Wellington, 6	69		Lisbon, 82		
Natal, 1 14	58		Nantes, 58		
Philadelphia, 15	156		Naples, 17		
Lytelton, 10 13	105		New York, 494		
Townsville, 3 19	45		Philadelphia, 51 cs.		
E. London, 3 16	46		Bombay, 15		
Auckland, 10	105		Chicago, 40 bxs.		
San Diego, 35 11	355		Genoa, 35		
Chemicals (otherwise undescribed)			Odessa, 25		
Natal, 6 pkgs.	£17		Rouen, 15		
Cape Town, 3 c.	10		Boric Acid—		
Melbourne, 2 cs.	10		Yokohama, 1 t.	£37	
Shanghai, 4	10		Havre, 5 1 c. 2 q.	120	
Barbelle Acid—			Borax—		
Dunedin, 1 cs.	£10		Cadiz, 18 c. 2 q.	£28	
Natal, 2	18		Rotterdam, 19 2	22	
Rotterdam, 7 c. 4 kg.	90		Antwerp, 19 2	29	
Cape Town, 1	9		Hamburg, 6 t. 12 1	107	
Hamburg, 1 t.	159		Bilbao, 5 2 1	150	
Sydney, 10	77		Valparaiso, 18 2	27	
Kewal, 1	168		Alicante, 10 3	15	
Genoa, 15	120		Calatz, 4 2	6	
Canterbury, 16 3 cks.	130		Calcined Magnesia—		
Sevilla, 16	130		Havana, 1 c. 1 q.	£161	
Brussels, 10	80		Gothenburg, 12 lbs.		

Yokohama,	200	
Barcelona,	110	
Calcutta,	250	
Malta,		4
New York,	250	
Stettin,		35
Valencia,	75	
Sodium Bichromate—		
Antwerp,	31 cks.	
Sodium Carbonate—		
Boston,	107 brls.	
Sodium Chlorate—		
Antwerp,	20 kgs.	
Boston,	60	
Hamburg,	110	4 brls.
Lisbon,	1	
Sodium Silicate—		
Alicante,		6 brls.
Barcelona,		35
Oporto,	24 cks.	
Valparaiso,	25	
Halifax,	5	
Valencia,	5	
Sulphate of Lime—		
Rouen,	5 t. 5 c. 2 q.	£22
Sulphur—		
Rio de Janeiro,	19 c.	£6
Rangoon,	10	5
Boston,	373 t. 9	1,285
Trinidad,	1	5
Rouen,	3	27
Sulphuric Acid—		
Valparaiso,	19 c. 1 q.	£15
Callao,	1 t. 3	20
New York,	20	320
Marseilles,	49 19 3	775
Lima,	8	1
Bordeaux,	115 4 3	1,781
Naples,	10 3	160
Superphosphate—		
Gr. Canary,	7 t.	£33
Teniffra,	1	5
Superphosphate of Lime—		
Valencia,	50 t.	£263
Tallow—		
Attacoe,	3 cks.	
Bayin,	3	
Bombay,	17	
Lisbon,	13 brls.	
Santander,	25	
Tartaric Acid—		
Havana,	1 c. 2 q.	£10
Portland, M.,	5 2	30
Tin Crystals—		
Valencia,	6 c. 1 q.	£18
Turpentine—		
Calcutta,	20 dms.	£20
Arica,	20	
Callao,	20 cs.	
Cebu,	20	
Eren,	3	
Lago,	10	
Varnish—		
Alga Bay,	1 cs.	
Lima,	12	
Monrovia,		10 dms.
Valparaiso,	6	
Constantinople,	1	
Leghorn,	5	1 ck.
Vermillionette—		
Calcutta,	4 cks.	
White Lead—		
Bahia,	10 kgs.	
Calcutta,	20	
Calcutta,	80	
Landana,	10	
Zinc Chloride—		
Bombay,	2 t. 15 c.	£25
Boston,	5 7	96

HULL.

Week ending March 12th.

Alumina—		
Hamburg,	5 cks.	
Ammonium Sulphate—		
Antwerp,	300 bgs.	
Dunkirk,	500	
Ghent,	2,585	
Hamburg,	289	
Rotterdam,	200	
Bleaching Powder—		
Bremen,	5 cks.	
Naples,	34	
Trieste,	7	
Verona,	12	
Borax—		
Christiania,	3 cks.	

Caustic Soda—		
Alexandria,	50 dms.	
Harlingen,	18	
Venice,	10	
Chemicals (otherwise undescribed)		
Antwerp,	8 cks.	
Amsterdam,	1 cs. 24 pkgs.	
Alexandria,	12	
Bari,	20 kgs.	
Christiania,	2 cs. 11 cks. 10 pks. 1280 slbs.	
Dunkirk,	12	
Gothenburg,	12 cs. 27 cks. 5 kgs.	
Genoa,	61 cks. 8 pks.	
Hamburg,	47 287 cs. 13 pks.	
Libau,	1 cs. 9 cks. 200 kgs.	
Naples,	5 cs.	
Rotterdam,	64 cs. 2 cks. 40 kgs.	
Venice,	28	
Coal Products (otherwise undescribed)		
Fiume,	376 cks.	
Trieste,	94	
Cottonseed Oil—		
Antwerp,	500 c.	
Christiania,	4	
Fiume,	80	
Flushing,	468	
Hamburg,	1,150	
Rotterdam,	3,961	
Trieste,	200	
Creosote—		
Hamburg,	50 cks.	
Dyestuffs (otherwise undescribed)		
Hamburg,	9 cks.	
Rotterdam,	5	
Linseed Oil—		
Aalesund,	11 c.	
Bergen,	87	
Christiansund,	41	
Christiania,	91	
Christiansand,	21	
Drontheim,	122	
Genoa,	25	
Hamburg,	732	
Rotterdam,	127	
Stavanger,	264	
Mineral White—		
Bergen,	70 bls.	
Harlingen,	200 bls.	
Rotterdam,	250 bls.	
Ochre—		
Amsterdam,	4 cks.	
Hamburg,	30	
Painters' Colours—		
Antwerp,	1 cs. 89 cks. 160 dms. 2 pkgs.	
Amsterdam,	4	
Bergen,	341 pkgs.	
Bremen,	2	
Christiania,	23 cks. 1 dm. 24 pks.	
Drontheim,	3	10 pks.
Ghent,	13	
Hamburg,	1 cs. 20 cks. 3 pkgs.	
Leghorn,	28	
Libau,	3	
Naples,	25	
Rotterdam,	1 9	1 pkge.
Stavanger,	68 pks.	
Trieste,	12	
Venice,	20	
Paraffin Wax—		
Libau,	295 bls.	
Pitch—		
Antwerp,	413 t.	
Dunkirk,	162	
Size—		
Flushing,	50 cks.	
Soap—		
Antwerp,	100 cs.	
Christiania,	1 ck.	
Tallow—		
Gothenburg,	15 cks.	
Tar—		
Hamburg,	25 cks.	
Rotterdam,	9	
Varnish—		
Antwerp,	4 cs. 21 cks.	
Amsterdam,	10	
Ghent,	1	
Genoa,	1	
Harlingen,	3	
Rotterdam,	3	

GLASGOW.

Week ending March 16th.

Ammonium Sulphate—		
Demerara,	41 t. ¼ c.	£493
Boracic Acid—		
Rouen,	3 t. 13½ c.	£169

Caustic Soda—		
Philadelphia,	7 t. 7 c.	£65
Coal Products—		
Pitch		
Philadelphia,	27 t. 19 c.	£32
Amsterdam,	102	142
Caen,	450	
Tar		
Philadelphia,	37 t. 10 c.	£81
Boston,	25	55
Cottonseed Oil—		
Rotterdam,	20 brls.	£180
Hungary,	9 t. 2½ c.	172
Dyestuffs—		
Alizarine		
Bombay,		£54
Indigo Extract		
Boston,	9½ c.	£20
Logwood Extract		
Portland (Me.),	3 t. 8½ c.	£99
Boston,	3 15	119
Farina—		
Philadelphia,		£30
Venice,	6 t.	84
Lead Acetate—		
Portland (Me.),	2 t. 5½ c.	£33. 16s.
Linseed Oil—		
Alexandria,	5 t. 13½ c.	£123
Bombay,	2 14½	51
Manganese—		
Rotterdam,	10 t. 2 c.	£89
Nitrate of Lead—		
Rouen,	5 t. 9½ c.	£100
Ochre—		
New York,	2 t. 10½ c.	£27
Paint—		
Singapore,	12 t. 11 c.	£151
Hong Kong,	2 ¼	30
Alexandria,	3 15	42
New York,	15 13½	179
Demerara,	1 17	£46. 15s.
Painters' Colours—		
Malta,	3 t. 14½ c.	£70
Paraffin Wax—		
Rouen,	25 t. 15½ c.	£671
Antwerp,	1 4	25
Venice,	12 7½	395
Hungary,	72 14½	1,850
Potassium Bicarbonate—		
Rotterdam,	46 cks.	£546
Potassium Bichromate—		
Rouen,	5 t. 2½ c.	£168
Antwerp,	10 9½	402
Venice,	7 16½	330
Potassium Prussiate—		
Rouen,	5 t. 18 c.	£353
New York,		820
Rosin Oil—		
Philadelphia,	3 t. 5½ c.	£33 17s.
Rotterdam,	50 brls.	£83
Salt—		
Singapore,	2 t. 13½ c.	£47
Shanghai,	1 5	20
Soap—		
Shanghai,	2½ t.	£86
Sodium Bichromate—		
Rouen,	5 t. ½ c.	£165
Antwerp,	30 1½	700
New York,	61 1	2,036
Venice,	1 16	59
Sulphuric Acid—		
Demerara,	3 t. 16 c.	£35
Tallow—		
Alexandria,	10 t. 11½ c.	£42
Rotterdam,	9 3	329
Turpentine—		
Alexandria,	1 t. 2 c.	£33

TYNE.

Week ending March 15th.

Alkali—		
Antwerp,	2 t. 14 c.	
Venice,	10 6	
Hamburg,	10	
Amsterdam,	68 13	
Rotterdam,	5 9	
Alum—		
Bilbao,	10 t. 14 c.	
Christiania,	½	
Ammonium Sulphate—		
Hamburg,	130 t.	
Valencia,	70	
Rotterdam,	50 13 c.	

Antimony—		
Hamburg,	15 t.	
Rotterdam,	5	
Arsenic—		
Venice,	5 t. 11 c.	
Elsinore,	1	
Bleaching Powder—		
Antwerp,	20 t. 14 c.	
Christiania,	4 15	
Hamburg,	31 17	
Amsterdam,	42 6	
Rotterdam,	12	
Drontheim,	10 3	
Elsinore,	3 3	
Caustic Soda—		
Antwerp,	16 t.	
Venice,	10 3 c.	
Hamburg,	18 16	
Valencia,	17 11	
Amsterdam,	2 18	
Elsinore,	18 15	
Seville,	18	
Litharge—		
Hamburg,	6 t. 7 c.	
Magnesia—		
Antwerp,	1 c.	
Hamburg,	6	
Phosphorus—		
Seville,	14 c.	
Soda—		
Esbjerg,	6 t.	
Christiansund,	25 18 c.	
Soda Ash—		
Venice,	10 t. 6 c.	
Christiania,	25	
Hamburg,	1 18	
Soda Crystals—		
Amsterdam,	1 t. 6 c.	
Sodium Hyposulphite—		
Rotterdam,	1 t. 3 c.	
Sodium Sulphate—		
Venice,	30 t. 12 c.	
Christiania,	11 16	
Sulphur—		
Antwerp,	20 t. 2 c.	
Rotterdam,	10	
Superphosphate—		
Venice,	200 t. 3 c.	
Cherbourg,	300 2.	
Tallow—		
Hamburg,	1 t. 9 c.	
Tanning Extract—		
Elsinore,	5 t.	
White Lead—		
Christiania,	15 c.	
Elsinore,	1 t. 7	

GOOLE.

Week ending March 1st.

Benzol—		
Ghent,	50 cks.	
Rotterdam,	5 dms. 44	
Chemicals (otherwise undescribed)		
Ghent,	2 cs. 7 cks.	
Rotterdam,	73	
Coal Products (otherwise undescribed)		
Ghent,	14 cks. 4 dms.	
Rotterdam,	142	
Dyestuffs (otherwise undescribed)		
Antwerp,	1 ck.	
Ghent,	1	
Hamburg,	10 cks.	
Rotterdam,	1 7 dms.	
Manure—		
Dunkirk,	690 bgs.	
Ghent,	1,034	
Pitch—		
Antwerp,	268 t.	
Dunkirk,	566	

GRIMSBY.

Week ending March 4th.

Chemicals (otherwise undescribed)		
Antwerp,	11 cks.	
Dieppe,	4 cs.	
Hamburg,	6 pkgs.	
Coal Products (otherwise undescribed)		
Dieppe,	127 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	5 cks.	
Farina—		
Dieppe,	16 sks.	

PRICES CURRENT.

WEDNESDAY, MARCH 22nd

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 1, 6, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	&	11/-
" Glacial	"	0	14	6
Arsenic S.G., 2000°	per lb.	0	0	3 1/4
Fluoric	per bottle	0	0	10
Muriatic (Tower Salts), 30° Tw.	per lb.	0	3	0
" (Cylinder), 30° Tw.	per lb.	0	0	1 1/4
Nitric 80° Tw.	per lb.	0	0	1 1/4
Nitrous	per lb.	0	0	1 1/4
Oxalic	nett	0	0	3 1/2
Phosphoric, 1750°	"	0	1	2 1/2
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" (free from arsenic, 145°)	"	1	5	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	2
Tartaric	"	0	0	11 1/2
Arsenic, white powdered	nett per ton	13	10	0
Alum (loose lump)	"	5	2	6
Alumina Sulphate (pure)	"	5	0	0
Aluminoferrous	"	2	10	0
Aluminium	per lb.	0	4	0
Ammonia, Anhydrous	"	0	1	2
" 880=28°	per lb.	0	0	2 1/2
" =24°	"	0	0	1 1/4
" Carbonate	nett	0	0	3 1/4
" Muriate	per ton	20	0	0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
" Nitrate	per ton	39	0	0
" Phosphate	per lb.	0	0	10 1/4
" Sulphate (grey) London	per ton	12	10	0
" (grey) Hull	"	12	10	0
Aniline Oil (pure)	per lb.	0	0	7
Aniline Salt	"	0	0	6 1/2
Antimony	per ton	45	10	0
" (tartar emetic)	per lb.	0	1	0
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	7	10	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	45/-	to	75/-
Bleaching Powder, 35 %	nett	8	0	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	to	35/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	7
" 50/90	"	0	1	5
Carbolic Acid (crystallised 40°)	per lb.	0	0	7 1/2
" (crude 60°)	per gallon	0	2	4
Creosote (ordinary)	"	0	0	0 1/4
" (filtered for Lucigen light)	"	0	0	1 1/4
Crude Naphtha 30 % @ 120° C.	"	0	0	10
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	"	1	6	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	1
" Lucigen" and "Wells" Oils	"	0	0	1 1/4
Copper	per ton	45	6	3
" Sulphate	"	16	5	0
" Oxide (copper scales)	"	42	0	0
Glycerine (crude)	"	13	0	0
" (distilled S.G. 1250°)	"	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	11	5	0
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white)	"	25	15	0
" brown	"	17	10	0
" Carbonate (white lead) pure	"	20	0	0
" Nitrate	"	20	0	0
Lime, Acetate (brown)	per ton	6		
" (grey)	"	10		
Magnesium (ribbon and wire)	per oz.	0		
" Chloride (ex ship)	per ton	2		
" Carbonate	per cwt.	1		
" Hydrate	per ton	17		
" Sulphate (Epsom Salts)	per ton	2		
Manganese, Sulphate	"	17		
" Borate	per cwt.	2		
" Ore, 70 %	per ton	4		
Methylated Spirit, 61° O.P.	per gallon	0		
Naphtha (Wood), Solvent	"	0		
" Miscible, 60° O.P.	"	0		
Oils:—				
Cotton-seed	per ton	24		
Linseed	"	21		
Lubricating, Scotch, 890°—895°	"	7		
Petroleum, Russian	per gallon	0		
" American	"	0		
Potassium (metal)	per oz.	0		
" Bichromate	per lb.	0		
" Carbonate, 90% (ex ship)	per ton	17		
" Chlorate	per lb.	0		
" Cyanide, 98%	"	0		
" Hydrate (Caustic Potash) 80/85 %	per ton	21		
" (Caustic Potash) 75/80 %	"	20		
" (Caustic Potash) 70/75 %	"	20		
" Nitrate (refined)	per cwt.	1		
" Permanganate	per cwt.	3		
" Prussiate Yellow	per lb.	0		
" Sulphate, 90 % (ex ship)	per ton	9		
" Muriate, 80 % (do.)	"	8		
Silver (metal)	per oz.	0		
" Nitrate	"	0		
Sodium (metal)	per lb.	0		
" Carb. (refined Soda-ash) 48 %	nett per ton	6		
" (Caustic Soda-ash) 48 %	"	4		
" (Carb. Soda-ash) 48 %	"	5		
" (Carb. Soda-ash) 58 %	"	5		
" (Soda Crystals)	"	3		
" Acetate (ex-ship)	"	17		
" Arseniate, 45 %	"	11		
" Chlorate	per lb.	0		
" Borate (Borax)	nett, per ton	29		
" Bichromate	per lb.	0		
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	11			
" (74 % Caustic Soda)	"	10		
" (70 % Caustic Soda)	"	9		
" (60 % Caustic Soda)	"	8		
" (60 % Caustic Soda, cream) (f.o.b.)	"	8		
" Bicarbonate	"	6		
" Hyposulphite	"	7		
" Manganate, 30%	"	16		
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0		
" Nitrite, 98 %	per ton	30		
" Phosphate	"	15		
" Prussiate	per lb.	0		
" Silicate (glass)	per ton	5		
" (liquid, 100° Tw.)	"	4		
" Stannate, 40 %	per cwt.	3		
" Sulphate (Salt-cake)	per ton	1		
" (Glauber's Salts)	"	1		
" Sulphide	"	8		
" Sulphite	"	6		
Strontium Hydrate, 100%	"	8		
Sulphocyanide Ammonium, 95 %	per lb.	0		
" Barium, 95 %	"	0		
" Potassium	"	0		
Sulphur (Flowers)	per ton	8		
" (Roll Brimstone)	"	6		
" Brimstone: Best Quality	"	4		
Superphosphate of Lime (26 %)	"	2		
Tallow	"	28		
Tin (English Ingots)	"	98		
" Crystals	per lb.	0		
Zinc (Spelter)	per ton	17		
" Chloride (solution, 96° Tw.)	"	5		

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THE NEED FOR BETTER INSPECTION.

IT is not often that vestry-meetings in rural districts are
attended with any amount of interest. The ordinary
ratepayers as a rule are conspicuous by their absence, the
general conduct of the meeting being really in the hands of a
few who not unfrequently ride rough-shod over the heads of
the others, while the gathering usually results in the retiring
overseers appointing their successors, and so the little game
is kept up. Perhaps the Parish Councils Bill will organize a
better state of things and help to consolidate the many rate-
levying and bye-law making authorities which are the curse
of the whole country.

Reference to our pages this week will no doubt cause some
amusement and serve to show that guardians, in matters re-
lating to the Public Health Act, should, like Cæsar's wife, be
"above suspicion." We refer to the vestry meeting at
Lostock Gralam, near Northwich, which evidently also points
to the fact that the Medical Officer of Heath, like the school-
master, "must be abroad." The retiring guardian, it seems,
is part proprietor of a bone works, which was described by
one speaker as sending out "reeking and filthy emanations
sufficient to poison even those who had the misfortune to get
used to them" and which "bred flies like the plagues of
Egypt"—in spite of this, the said guardian, as member of the
Rural Sanitary Authority, moved a resolution that a newly
established works in the neighbourhood, should be indicted
as a nuisance, even before the works had been established.
He pleaded as an excuse that his works had been inspected
by Dr. Fox, the Medical Officer, and by the Sanitary Inspec-
tor (at which there was loud laughter) and that he only
moved the aforesaid resolution after their "own clerk had
said it." It further transpired that he had also appeared as
a witness against Messrs. Bowman, Thompson, & Co. (a
neighbouring works) in a prosecution under the Public
Health Act.

The foregoing enables us to focus our subject, and it
serves as a peg upon which we may hang our hat, as we
have had considerable experience in these "complaints,"
and we strongly protest against the present mode of
inspection. The inspection of works in which manu-
facturing processes are carried on should not be left to
medical officers or sanitary inspectors. If they are to be
inspected at all they should be visited by men of experience,
who would not be satisfied by bogus excuses, nor who would on
the contrary ask for anything frivolous to be done. If the bone
works of the country had been placed under the inspection
of the Alkali, &c., Works Department we are quite sure that
the Lostock works would not now be "stinking in the
nostrils of all passers-by," but the owners would have been
compelled long ago to have adopted the best practicable
means of avoiding a nuisance. Such means are well known
to these inspectors, and they would without fear or favour
have required the owners to adopt them. Under the present

condition of things is it likely that the sanitary inspector appointed by the Board would be able to detect any smell proceeding from the premises of one of its Guardians? The idea is preposterous, but nevertheless it is a subject that concerns the whole country. The smell from a tar works is by some considered a nuisance, and people have been stopped from running hot pitch into cooling bays on account of the smell of the vapours arising during the operation; yet in many of our large towns a reeking pitch boiler is put up immediately under the windows of a handsome shop, and kept there for weeks; but this is not a nuisance. Truly we are a queer race of people.

However, returning to our "moutons" (we mean the dead ones in a bone works), there are few people who really understand the vileness of some of these places. When on tours of inspection for the Local Government Board some years ago, we have seen some of the most disgusting sights it is possible to witness—dead and rotting carcasses, breeding flies and maggots by the million—and it has been proved over and over again that flies may be most dangerous sources of contagion.

Who knows but that many animals are killed yearly through inoculation by flies with the poison of semi-putrid carcasses? This is a question not only for the Board of Agriculture of this country, who should see that these works are put under experienced and healthy supervision, but also for the medical authorities, for if we mistake not there was the death of a Cheshire gentleman recorded last year as having been caused by the "sting of a fly."

We have not space to say more except a word with reference to the sanitary arrangements of rural districts. This was the main work these authorities were created to control, but after the utterances of several of the speakers at Lostock Gralam, and the truly awful disclosures made to the meeting, we can only say that if the cholera should visit this country during the present year and this township escapes its ravages, well—we shall have very little belief in the necessity for latter-day sanitation.

THE CHEMICAL INDUSTRY OF BERLIN.

THE following report of the German Chemical Trade has been published recently in the *Bericht über Handel von Berlin*. The report of the previous year will be found at page 75 in No. 244 of this Journal.

Although the year 1891 may be looked upon as a fairly good one for the chemical industry of Berlin, yet it remains considerably behind the previous year when looked at as a whole, especially in its financial aspect.

After business had been fairly brisk during the first months of the official year, a certain weakening took place in the second half, on account of the general attitude of affairs, which not only produced a shrinkage of consumption, but also a reduction of prices in almost all branches of chemical industry.

The unfavourable state of things mentioned in the last report has therefore continued; before everything it has remained impossible to counteract by increased prices the rise in the cost of production caused by greater expenditure on fuel, labour, etc., as well as increased cost of certain raw materials. The disproportion resulting from this has even increased in the past year on account of the increased competition.

It is to be hoped that the commercial treaties to be made with Austria and Hungary, Italy and Switzerland, although they can only directly and at once benefit the manufacturing chemical industry, will also, by means of the stability introduced into the trade with these countries, bring about a steady and safe market for general chemical products, such as pharmaceutical preparations, etc. If, as a further result of these commercial negotiations, the tariffs were lessened on goods exchanged with other countries, this could not fail to be a great assistance to a large part of the chemical industry of Berlin, especially that portion of it which carries on an export trade in pharmaceutical

preparations and aniline and aniline colours. As regards the articles of commerce among

HEAVY CHEMICALS.

Ammonium sulphate found a ready market until the autumn of this, however, there was a distinct tendency for purchasers to hold with the result that stocks increased and prices gradually fell during the last months of the year.

The greatly increased production of England may have contributed largely to this result, the amount produced being some 20,000 more than in 1890. The price of the best Berlin makes varied from 25 M. to 22 M. per 100 kilos. (2 marks equal three shillings and sixpence).

Ammonium carbonate also experienced a fall of a few M. per 100 kilos, during the last quarter of the year; this decline, however, was not caused by diminished demand or increased production, but solely by the action of English competitors, who, without a ground, suddenly lowered the price of the article by about 1 M. Average price 64 M.

Sal-Ammoniac crystals—first quality—maintained the price of the preceding year in a brisk market.

Ammonia, as the result of over production, became cheaper, and could be had technically pure, 0.910, Sp. Gr. at 15° C.

The demand for *Potashes* was vigorous throughout the year, so that there was no accumulation of stocks. The prices rose from 40 M. to 48 M. per 100 kilos, for 96—98 %, but experienced a distinct fall to 39—38 M. during the last months, as is always the case when the time for concluding contracts for the following year approaches.

On the other hand, the prices of the *Stassfurt potash salts*, important raw materials for the manufacture of potassium and other substances, have experienced a rise owing to the cost of production, and contracts for delivery in 1892 were made at the following figures:—

Potassium chloride, at least 80 %, 14.25 M. per 100 kilos.

Potassium sulphate, at least 96 %, 17.35 M. per 100 kilos.

The consumption for these two potassium salts has again ably increased during the past year.

Oxalic acid was in steady demand throughout the whole year, notwithstanding this, prices fell a mark at a time from 72 to 71 M. without any apparent reason for the fact. Endeavours to form a syndicate in the article were frustrated by the action of the makers.

Borax and *boracic acid* maintained their last year's position, whilst *yellow prussiate of potash* found a steady demand at better prices, about 190 M.

Potassium chlorate was, as in previous years, not very remunerative, the price remained throughout the year at the old figure of 9 M. *Sodium silicate*, the demand for which kept at about the same level in 1890, a slight improvement was perceptible towards the end of the year; prices did not, however, at all correspond to the value of the alkali employed in its manufacture.

This unfavourable position is entirely due to the over production of soda, which is going on in this article, as the result of which manufacturers have also to meet foreign competition.

The prices for *Crystallised soda* were low at the commencement of the year, but rose later on, when there was a probability of the formation of a syndicate in the article, only, however, to fall again when the plan fell through. Only after the formation of a ring by the makers of Germany could the manufacturers introduce and maintain this convention and their sale regulations, and thus secure a permanent improvement in the price of crystallised soda compared to that of calcined and caustic soda.

Nitric acid was in tolerable demand, but in spite of the high cost of raw materials, an improvement in price could not be expected.

Sulphuric acid maintained the old price of about 23 M. during the first half of the year, but afterwards fell considerably in value, so that the concentrated acid went as low as 8.50 to 7 M. per 100 kilos, including packing and a further fall was expected, whilst in the second half of Berlin two new works started and put their products on the market.

An excessive supply also made itself felt in *Hydrochloric acid*, very low prices had to be accepted. Average price 10 M. per 100 kilos, including package.

COAL-TAR PRODUCTS.

The development of the coal tar industry has also not been in every respect, since especially in the latter part of the year the prices of the materials used for the making of colour

Benzene, which in January was worth 120 M., and which has since fallen to the half of the latter price. Whether this rapid depreciation has been caused by a change in the demand, which has brought about diminished use of the article; or by an increase which has recently taken place in the removal of the gas; by the expectations thus aroused; by speculation;

have combined with the general stagnation of trade, can it be determined.

and *Xylene*, which are produced in smaller quantity and less significant of the value of tar, have also participated in prices although to a less extent than benzol.

It has in the course of the year gradually fallen about 25%

and for *Naphthalene* has also greatly diminished since last year the price has in consequence fallen considerably.

Position of these articles in the market has so greatly weakened the year, crystallised *Carbolic Acid*, which has been neglected, did not improve at all. No extensive orders from the makers of crude carbolic, so that some prefer not to work from this body. It remains to be seen whether this action is hoped for renewal of the government orders will lead to a position of affairs. Many of the consumers concerned have considerable losses.

in *Pitch* and similar products was very satisfactory throughout the year. These articles were indeed affected by the general depression in the latter portion of the year, but the demand remained, and may be hoped that with the cause the effect will also be that all the tar products will take a better position in the general improvement of trade, which is looked for.

in *coal tar colours* maintained the high level of the year, and would have even improved had not the McKinley tariff in America, and the financial and political difficulties in that continent, seriously affected the textile industries. As there is no improvement to be chronicled in the colour of the year, several colours have even fallen in price. *Aniline* and have followed the other tar products, and the year closes with reduced values for these articles.

patent law, which came into operation during the last few years, the inventor better protection for his intellectual property, and that its action will also be beneficial in the colour

and for intermediate products for the colour industry such as, has diminished in 1891 in comparison with the previous year, competition has aided over production which still goes on, and as a result prices have declined considerably, and materials have only to a limited extent moved in the year. The past year cannot therefore be considered a favourable one for this branch of industry, and unfortunately there are at present no better prospects in view.

and for non-poisonous chemical and mineral colours, mainly on the whole at the level of the previous year, but here a drop was to be noticed at the close of the year, which indeed opened into a somewhat serious dullness. The competition in this branch has as usual been very keen at home and abroad. Furthermore frequently demanded a reduction of price, and in connection with an exceptional extension of credit which was so required, has placed the whole trade in a very difficult position. Further influence for evil upon this industry, must be the artificial rise in the prices of some raw materials. The makers of *alumina* and Prussian blue, etc., into syndicates to keep the prices of these materials to an unjustifiable extent. Proximately of 30 per cent. of the value, makers were in a position to raise the price of *alumina*, etc., at a figure higher by this amount than the prices in England and elsewhere. Foreign competitors, who purchase important raw materials at a lower price than is Germany, and in this way the export trade was diminished. Works in other parts of the continent were enabled to compete with German works very keenly, since the finished articles can be sent into the latter country free of duty. The resuscitated industry will act in the same direction, and it therefore appears that the duties on potash, alum, *alumina*, etc., should be reduced in order to improve the position.

is suffered from the prevailing conditions and the increased duties, and also from the augmented tariffs. The Russian import which has hitherto been of considerable value was reduced by the new taxes which came into force on July 1st., and the exportation to England, Belgium, etc., and to the United States maintained the same position as in the former year.

and for pure *methyl alcohol*, which is made in two works, was normal at a price of about 135 M. The business done in it, on the other hand, declined somewhat, but recovered towards the end of the year owing to large orders from England, so that at the close of December there were no large stocks on hand in any

it was in a worse position than it has been for some years, and at the close of the year were very unstable, the introduction

of the cheap American raw material—pyrolignite of lime—having aided in the production of this unsatisfactory state of affairs. The lowest point reached by this article—18 to 19 M. for best white, 80 to 82% salt—cannot be permanent, since the Americans cannot make it at the price, and as soon as they find this out, experience teaches that they will at once limit the production or even stop it altogether. At the close of the first half year a decided improvement in the export to Russia was to be chronicled, in view of the higher tariff which was to come into force on July 1st. The larger stocks were, however, soon exhausted by the temporary increase of demand, and a greatly increased home manufacture resulted in many branches.

The suggestion that the manufacturers interested should be consulted concerning the limits of purity to be required in drugs, seems to have been acted upon, and to have given satisfaction.

Ether and Alcohol.—The temporarily very high prices for spirits contracted the business in these articles and also in *Colloidion* to a considerable extent.

Bromine.—In July the prices of bromine and its preparations were lowered by 20 to 25 % by the Stassfurt convention, although the higher figures had been arranged to last until the close of the year. The reason of this action, which caused a considerable loss to the manufacturers of the article, was the course taken by certain American producers, who in spite of existing agreements, disturbed the European market by enquiries and offers. No arrangement has yet been arrived at between the American and German manufacturers, in spite of much negotiation, and although large amounts of German bromine and potassium bromide have been sent to the United States, the amount of the tariff being thus sacrificed. Towards the close of the year it was arranged for the Stassfurt bromine convention to be continued for several years, provided the union of the crude salt works was not dissolved during the same period, the lowered prices being temporarily agreed to. In the meantime no orders for bromine extending over any considerable length of time are forthcoming.

Potassium cyanide.—The discrepancy between the amount asked for yellow prussiate and the value of potassium cyanide has been still further increased during the year.

Glycerine has also fallen in price, the crude article coming to about 55 francs; refining has also scarcely been profitable.

Iodine.—The price of 9d. for crude iodine has continued throughout the year. In spite of the disturbances which broke out at the commencement of the year in Chili, and which stopped the exports from that district, there has been no scarcity, thanks to the stocks held in Europe. Since the limitation of production by the nitrate producers last summer, the article has become still firmer.

THE NEW CHEMICAL DISTRICT.

THE annual meeting of the ratepayers of Lostock Gralam (Northwich), was held in the National Schoolroom, on Thursday evening in last week, the vicar, the Rev. Keith Chalmers, presiding.

The Vicar, in taking the chair, said he might have presided over the meeting by right; but he preferred to take the chair by goodwill. He never cared to presume upon his rights, and if it had not been the goodwill of the meeting he would not have taken the chair, even though he could claim a legal right. He was glad to see a large and representative meeting that evening, as they had some very important questions to settle. He had, first of all, to compliment the Assistant-Overseer upon the manner in which he had advertised the meeting. He had exceeded the law; but, owing to his discretion, they had a large attendance of ratepayers, and, as the town was growing from year to year very rapidly in importance, it was the duty of every ratepayer to be present at civil vestries to take his part as a man in legislation and in the interests of the township. (Hear, hear.) They were present to discuss many matters, and, although they could not all think alike, he believed they could agree to respect each others' opinions. They could speak out as men clearly and plainly, but with due regard to the feelings of others.

Mr. Howitt said before there was anything done about the guardianship he would like the present guardian to give them a *résumé* of the work which had been done in connection with the office during the past year.

Mr. Hesketh: As far as regards that, Mr. Howitt, it has not been customary for it to be done here, and if you wish it I have a statistical report which you may see in the morning.

The Chairman: Kindly address yourself to the chair, Mr. Howitt. I think it is better not to have anything personal.

Mr. Hesketh: I cannot pretend to refer back for 12 months. We have had a report published all through the year of everything that has been done.

A Voice: It is a report.

Mr. A. R. Davis: I think it is very easy for us to understand how difficult it will be for Mr. Hesketh to reply to a general question such as Mr. Howitt addressed to him; but he may find it easier to answer one or two questions I should like to put to him. I think, Mr. Chairman, it is a matter of common notoriety in Lostock Gralam that Mr. Hesketh is a part proprietor of a bone works, and that bone works is a nuisance to the whole neighbourhood. I think it is a matter of common knowledge that he sends out reeking, filthy emanations that are sufficient to poison even those who have had the misfortune to get used to them, that he breeds flies like the plagues of Egypt, and that in fact, he makes life all but unbearable to those of us who have to live in Lostock Gralam. Now, what I am going to ask Mr. Hesketh, Mr. Chairman, is this: Seeing that he is part proprietor of works which are such an awful nuisance to all Lostock and make it to stink in the nostrils of all the passers-by, how can he, with any degree of consistency, take up the position he has taken up with regard to the new industries which have been introduced into the district? (Applause.)

Mr. Howitt: Mr. Hesketh did not reply to my general question; but I should like to ask Mr. Hesketh two or three questions. Will he tell us how many times he has attended out of the possible attendances as guardian; how often he has voted against the industries that have recently come to this district; if he has ever brought before the Sanitary Authority his own case as a manufacturer of manure? Those are the three questions that I put at present to Mr. Hesketh.

Mr. Hesketh: My own case first of all. As to what I manufacture has been before the Board before I was a guardian, and was dealt with summarily.

Mr. T. A. Reid: The Public Health Act has not been respected, sir.

Mr. Hesketh: Asking your pardon. It was by the Medical Officer of Health, sir. What is the next question?

Mr. Howitt: How often have you attended out of the possible attendances of the Board?

Mr. Hesketh: I refer you to the *Northwich Guardian* of last Tuesday, where my attendances are stated.

Mr. Howitt: The next is, have you ever brought or placed before the authority as a nuisance your own place?

Mr. Hesketh: I will just answer that question. It has been examined both by Dr. Fox (our medical officer of health) and by the sanitary inspector. (Loud laughter.)

Mr. Davis: I should like to point out that it has not been dealt with summarily. It is a smell which continues to this day. How can a smell which continues to this day be said to be dealt with summarily?

Mr. Reid: I beg to say that the law has been disregarded and not respected with reference to this matter.

Mr. Hesketh: With regard to the question Mr. Davis has just put, perhaps if I was the editor of a newspaper or if I had the tongue of a lawyer I could answer them better. I don't feel called upon to answer the questions put. I can only say this in all sincerity—that what I have been accused of to-night has never been done by me. I would rather you pass over all this, and nominate who you think proper.

Mr. Davis: Mr. Chairman, I think I may claim the privilege of another question, because Mr. Hesketh has replied that, so far as he knows, he has not done the things I accuse him of. I should like him to deny categorically the three things I put before him if he can. I say that, first of all, he appeared as a witness against Messrs. Bowman, Thompson. That is true.

Mr. Hesketh: Perfectly true, I acknowledge. I was a witness because I was subpoenaed to go.

Mr. Davis: Is it not also true that at this meeting of the rural sanitary authority you said that the process about to be adopted at the new works was the worst process in existence for stench?

Mr. Hesketh: I was not the party who gave utterance to those words, whatever the report is.

Mr. Davis: The paper then misrepresents you. Is it true you moved that in the event of the company establishing a noxious trade that the authority should be compelled to prosecute under the Public Health Act?

Mr. Hesketh: After our own clerk had said it I did propose it.

Mr. Davis: Then how can you reconcile those two actions with the fact that you are a notorious smell maker in Lostock Gralam?

Mr. Hesketh: I have lived in Lostock Gralam, and I think I am not a bad sample of what my smell has done. You gentlemen go to live at Knutsford, where there is no smell.

Mr. Davis: We cannot live here as long as this smell is in existence.

Mr. Hesketh: You cannot prove that our bone smell has done any harm yet.

Mr. Reid: It is a contravention of the Public Health Act.

Mr. Hesketh: You say so, Mr. Reid, I know.

Mr. Howitt: Mr. Hesketh has said that we should propose our own man.

Mr. Hesketh: Yes.

Mr. Howitt said they had come there as ratepayers to propose to carry their man. They wanted the ratepayers to exercise their power without fear.

The Chairman nominated Mr. Howitt.

Mr. Howitt asked Mr. Moss, as he had been making a noise, to address the meeting.

Mr. Moss said all that had been done was to call Mr. Hesketh the names they could find. What Mr. Hesketh had done was to call the Board of Guardians was right, for the smell from the works was a thing unbearable. People could not live at all, and when the wind blew in a certain way there was such a quantity of foul smoke that could not keep their windows open. (A Voice: "Are you speaking the truth?") It was nothing but the truth. The vicar had said that hoped there would be no personalities; but there had been nothing but personalities.

The Chairman urged that they should get to business, and again he wished to nominate Mr. Howitt, who would represent all interests from the labourer upwards.

Mr. Kinsey nominated Mr. Hesketh as guardian, remarking that he believed he had done his duty faithfully in the past.

Mr. Moss seconded.

Mr. Davis seconded the nomination of Mr. Howitt.

The names were put to the meeting, and 26 ratepayers voted for Howitt and 20 for Mr. Hesketh, the result being received with applause.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the city of London for the ending March 18th, 1893, was on the whole good. According to the report of Mr. W. J. Dibdin, chemist and superintendent examiner to the London County Council, the tests made at the various testing stations showed two deficiencies in illuminating power, against the Gas-Light and Coke Co., and one against the South Metropolitan Gas Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles)	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sp. grav. hyd.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'50	12'32	0'24	N
South Metropolitan Gas Co.	6	16'46	9'71	0'46	N
Commercial Gas Co. ..	2	16'55	6'85	0'05	N

The standard gas supplied by these companies should have illuminating power of 16 sperm candles, and contain not more than 4 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on average of three days.

THE INDUSTRIAL USES OF SODIUM SILICATE

(Specially Contributed.)

ABOUT two months since we gave in these columns an outline of the manufacture of sodium silicate. We now propose to give with some of the ways in which this article may be applied in industry. Besides the principal use of silicate of soda in the manufacture of cheap soaps, there are many purposes for which its employment is found to be advantageous or even indispensable. It may be of interest to briefly enumerate a few of the more important ones; some are kept secret by manufacturers. Silicate of soda, combining the properties of caustic alkali and soap, is well adapted to be used either itself or in connection with other detergent materials for cleansing kinds of articles where the action of caustic soda is too keen, or the carbonate of soda or soap not strong enough. Thus it is found to be extremely useful in cleaning greasy materials. Several of the continental railway companies, for instance, are able, by the use of silicate of soda, to recover their dirty cotton-waste no less than about two times, whilst formerly (when caustic soda was employed) this could only be done two or three times. This fact proves that the strong vegetable fibre is not impaired in any material degree by treatment with the agent in question.

Very favourable results have also been obtained with silicate of soda as a substitute for caustic soda in the manufacture of paper, especially in the bleaching of jute and hemp waste; it has furthermore

successfully employed in connection with the process of sizing and waterproofing paper (wallpapers, etc.), as well as a substitute for china clay.

This silicate is also a fixing agent for alumina and other mordants on cotton, while it is said to be unequalled as a sizing for cotton-thread in cotton mills for preparing stock for the loom.

Its use for rendering textile fabrics incombustible is well known, and has extended over a period of nearly 30 years.

Large quantities are consumed in the manufacture of artificial stones, of enamels, and paints. The so-called silicated paints contain silicate of soda as a principal ingredient.

It is found useful in building construction for rendering timber fire-proof and walls waterproof or air-tight.

Its uses in chemical works are numerous. Thus it is employed for soaking bricks when it is desirable to prevent diffusion, for painting steam-pipe coverings, and thereby dispensing with canvas covering.

Asbestos mixed with silicate of soda forms an excellent non-conducting material, especially adapted for jacketed pans, retorts, etc.

It may be used by itself or in connection with other materials as a cement for stone, glass, porcelain, marble, etc., and for attaching labels to metal surfaces. Certain kinds of cements owe their hardening properties to the presence of silicate of soda. Sellar's cement for example consists nearly entirely of barium sulphate and sodium silicate.

Silicate of soda is the only material from which pure hydrated silica may be prepared, such as is required in some processes for bleaching oils. For this hydrated silica probably many uses will be found as the result of further experiments.

Foreign Trade Returns.

(Compiled for the JOURNAL from Official Sources.)

THE following is a monthly review of the export and import trade of foreign countries in chemical and allied products such as are produced in the United Kingdom; the actual amount exported by, and imported into Great Britain, being specified where possible.

GERMANY.

According to the returns of the Government Statistical Department of Foreign Trade for the month of Dec., 1892, the exports and imports (expressed in 100 kilos.) of the various selected articles undermentioned were as follows:—

Class.	Imports.	Exports.
	100 kil.	100 kil.
Ores and cements	2,464,786	2,566,309
Vegetable oils, fats, etc.	562,977	95,586
Paper and paper goods	92,437	146,724
Petroleum	1,008,284	2,038
Coal and other fuel	10,440,237	10,668,584
Tar, pitch, etc.	138,885	44,123

The total weight of the imports for December show a decrease and the exports show an increase, as compared with the same month in 1891. The total imports for the twelve months, January to December, 1892, show an increase, while the total exports for the twelve months show a decrease of 248,325,900 kilos. as compared with the same period of 1891.

AUSTRIA-HUNGARY.

The following are the returns of the *Statistische Übersicht* for the twelve months of 1892 (January to December). In the undermentioned imports every item shows an increase; while in the exports, gums and resins and chemical substances are the only two items which show an increase as compared with the same period in 1891. The total imports and exports, as compared with the corresponding period of 1891, show a decrease in both cases.

Class.	Imports.	Exports.
	Metric Centners	Metric Centners.
Seed oil, etc.	289,569	5,718
Minerals	4,043,955	7,124,506
Dye and tanning stuffs	473,600	629,995
Gums and resins	365,076	164,979
Minerals, oils, etc.	1,503,011	24,487
Chemical substances	734,591	282,700
Chemical products	73,400	90,007

A Metric Centner is about 94 lbs. Avoirdupois.

ITALY.

The following are the returns for the twelve months, January to December, 1892:—

Class.	Imports.	Exports.
	Lire.	Lire.
Chemicals, medicines, etc.	43,892,192	35,915,680
Colours, paints, and dyes	24,657,325	10,514,110
Minerals and metals	120,635,103	36,691,589

A Lire is equivalent to 0.25d.

In the imports, minerals and metals, &c., show a decrease and the other two items an increase, as compared with the same period in 1891. In the exports there is an increase, except in chemicals and medicines, &c., compared with the same period. In regard to the total imports and exports, there has been an increase in both items.

INDIA.

The following is a *résumé* of the official returns published by order of the Governor-General in Council, and represents the imports of foreign merchandise into India, and the exports of Indian manufacture and produce, for November, 1892:—

Imports:

Class.	Quantities.	
Salt	tons.	34,047
Quicksilver	lbs.	45,490
Alum	cwts.	4,428
Arsenic	cwts.	47
Bicarbonate of soda	cwts.	2,007
Chemicals for paper making	rupees.	53,852
Sulphur	cwts.	1,624
Quinine	lbs.	5,442
Aniline and alizarine dyes	oz.	10,001,524
Mineral oils	galls.	5,220,395
Linseed oil	galls.	24,067
Gums and resins	cwts.	9,096
Manures	tons.	24
Pitch, tar and dammer	cwts.	9,919
Dynamite and other explosives	cwts.	536
Cement	cwts.	31,732
Candles	lbs.	364,319
Paints and colours	cwts.	10,343
Soap, all kinds	cwts.	4,567

Exports:

Class.	Quantities.	
Cinchona bark	lbs.	291,063
Cutch	cwts.	9,831
Indigo	cwts.	14,615
Myrabolams	cwts.	27,878
Turmeric	cwts.	6,754
Castor oil	galls.	269,274
Cocoon oil	"	47,351
Borax	cwts.	586
Caoutchouc	"	155
Mica	"	52
Saltpetre	"	45,269
Shellac	"	11,774
Oil cake	"	31,790
Soap	"	546
Animal Bones	tons.	2,840
Musk	ozs.	170

In the above mentioned, out of the sum total for each item, the following quantities were either shipped from, or sent to the U.K.:—

Imports.—Of salt, 20,196 tons were imported from the United Kingdom and 5,934 tons from Germany. Of Quicksilver, 39,790 lbs. were sent from the United Kingdom. Gums and Resins—Of the 9,096 cwts. of gums and resins, 2,085 cwts. were resin. Of paints and colours 7,603 cwts. were sent from the United Kingdom. N.B.—All Petroleum which has its flashing point at or above 200° F., and is

proved to the satisfaction of the Customs collector to be intended to be used for the batching of jute or other fibre, or for lubricating purposes is free of duty.

Exports.—Of cutch, 3,614 cwts. were sent to the United Kingdom; of indigo, 6,092 cwts.; myrabolams, 19,492 cwts.; turmeric, 2,095 cwts.; castor oil, 157,504 galls.; coconut oil, 20,078 galls.; caoutchouc, 133 cwts. Of saltpetre, 11,201 cwts. were sent to the U.K., 19,819 cwts. to the U.S.A., 11,765 cwts. to China, and 2,484 to other countries. Of shellac, 5,060 cwts. were sent to the U.K., 586 cwts. to France, 4,081 cwts. to the U.S.A., and 1,327 cwts. to other countries.

The total imports for the month of November show a decrease, as compared with the same month in 1891, while the exports show an increase, as compared with the same period of 1891.

Official Memoranda.

(From the Board of Trade Journal.)

CONSUMPTION AND PRODUCTION OF METALS IN FRANCE.

The consumption and production in France of various metals is as follows:—Of lead, the consumption is 60,500 tons, of which 11 per cent. is produced in France; of zinc, the consumption is 47,000 tons and production 44 per cent.; of copper, 28,000 tons and 3 per cent.; of tin, 5,200 tons and production nil; and of nickel, 921 tons and 36 per cent. France is therefore indebted to foreign countries for 89 per cent. of its consumption of lead, 56 per cent. of its consumption of zinc, 92 per cent. of its consumption of copper, the whole of its consumption of tin, and 64 per cent. of its consumption of nickel.

GOLD DISCOVERY IN GERMAN AFRICA.

The German Ministry of Foreign Affairs at Berlin has received at the Customs office at the mouth of the Schwakop, in the German colony in South-west Africa, a report on the discovery of auriferous deposits. Samples have just been received at Berlin, but they have not yet been analysed.

THE CAMPHOR TRADE OF FORMOSA.

According to the United States Minister at Peking, the report of the Customs Commissioner at Tamsui (Mr. F. Hirth) for the year 1891 contains the statement of some interesting facts relating to the camphor trade in the island of Formosa.

There were exported from Formosa to Hong Kong in 1891, 16,353 piculs of camphor (a picul is 133½ pounds avoirdupois), of which the value was 253,575 haikwan taels (the haikwan tael is worth 1.20 dols. in American gold). The total export was 16,760.96 piculs, valued at 259,871 haikwan taels. This is a large increase over former years. The product in 1890 was 100,830 piculs.

Unfortunately, one of the causes of this great production is the destruction of the camphor trees by the persons engaged in the trade. They are said to hew down the trees remorselessly. This extraordinary increase in the production of camphor is also alleged to be greatly due to the extensive use of the article in the manufacture of smokeless powder. Less expensive ingredients of this new invention have, it is said, been now discovered, but camphor is evidently still used in its manufacture.

Under new regulations the purchasers of camphor are not allowed to approach the stills for fear of injury from the savages; but four markets have been selected, viz.: in Taipei, Tokoham, and Sokko-k'eng, and in Chung-lu, or middle district, Chipchipkoi and Tohchay, whither all produce is to be taken for sale. The provincial government holds that the camphor forests, having been reclaimed by warfare from the savages and brought under cultivation at government expense, are the property of the crown. The government might utilise these forests under its own administration. If it does not choose to do so, Chinese settlers must abide by the regulations made by the government.

The commissioner states that as long as Japan camphor is high Formosa can compete, but if the former is reduced in price the Formosa trade would cease, unless the tax were reduced. Formosa camphor cannot be refined to the proper hardness without adding Japan camphor. The cause of this peculiarity has not been discovered.

The great quantity of oil and moisture contained in the Formosa camphor keeps the prices 5 per cent. lower than those of the Japan gum.

Camphor is the chief ingredient of celluloid. As is well known, also, it is extensively used in the materia medica of Europe and America. It is to be hoped that the new regulations above mentioned will have a beneficial effect on the production of this important article.

COMPARATIVE TESTS OF AMERICAN, RUSSIAN, AND SUMATRA PETROLEUM.

At the request of Mr. van du Berg, representative of the Royal Dutch Oil Co., a chemical and physical analysis has been made of Sumatra (Langkat) oil by Mr. Leyden, of the firm of Messrs. Rath-champ and Co., Batavia.

The results in comparison with Russian and American oil are as follows:—

Specific gravity at 15° centigrade is for—

Langkat oil	0.799 (at 28°, 0.789).
American "	0.791 (" 0.784).
Russian "	0.825 (" 0.815).

Langkat oil was quite colourless, American oil had a prominent yellow colour, and Russian oil was slightly yellowish. There was no difference as to fluorescence. Langkat oil is neutral and contains therefore no sulphuric acid or caustic soda, the same is the case with the American oil, Russian oil has a slightly acid reaction. All three sorts contained no sulphuric acid. From the trial as to lighting power it was evident that the Langkat oil, after six hours' burning, was only diminished by 4.01 per cent., the American oil being 9.37 per cent. less. The following temperatures were found for the flashing points:—

	Centigrade.
American oil	43.4
Langkat	47.6
Russian	51.2

From the comparatively high temperature for the Langkat oil it is quite clear that this oil is quite safe for domestic use. When mixing the same amount of Langkat oil and sulphuric acid it is coloured only yellowish, while Russian oil is coloured brownish, and American oil dark brown. The temperature was not changed by this with all three sorts. No change was seen when mixing the three kinds with a solution of nitrate of silver saturated with ammonia. Distilled in the Engler apparatus, the following results were obtained:—

	Langkat. Per Cent.	American. Per Cent.	Russian. Per Cent.
Under 150 centigrade	15.9	18.7	13.2
Between 150—270	79.6	47.8	74.0
Over 270	3.4	32.8	12.0
	98.9	98.8	99.2

The photometric trial gave the following results:—

America	100
Langkat	109
Russian	97

during the same time and quantity of oil.

It is further evident from these trials that when burning Langkat oil the wick was not carbonised, as was the case with the other sorts. From this we conclude that Langkat oil can stand a fair trial with American and Russian oil, and has still the following advantages:—

The oil is colourless.

And quite neutral, and so does not give offensive smell of any kind.

Mounts quicker in the wick than any other oil.

This oil contains more hydrocarbons, boiling between 150 and 270 centigrades (body of oil).

Contains almost no hydrocarbons over 27 per cent.

Lighting power is greater with the same consumption of oil.

Lighting power diminishes less after burning for a long time.

The Langkat oil contains no resinous or fatty matter at all, the American oil traces, and the Russian oil a small quantity.

Reports of Companies.

MESSRS. WOODHOUSE AND RAWSON UNITED, LIMITED.

An extraordinary general meeting of Woodhouse and Rawson United, Limited, was held on Monday at the City Terminus Hotel, London, to consider the question of voluntarily winding up the Company.—Mr. S. Pope, Q.C., who presided, explained that the chairman of the Company (Sir Rawson Rawson) was unable to attend in consequence of a family bereavement. He remarked that since they met to receive the report of the committee appointed at the annual meeting (*C. T. J.*, p. 177, Vol. XII.) a receiver had, at the instance of a debenture holder, shareholder, and creditor, been put into possession of the Company as receiver and manager. The Directors did not see their way to resist that appointment, nor did the trustees for the stockholders. In fact, Sir Rawson Rawson and himself, as representing the debenture stockholders, felt it was necessary that if a receiver were appointed at all he should represent the whole of the interests of the Company and not one class exclusively. It is proposed that a new company be formed to take over the assets of the existing Company. The new company is to realize the assets, receiving a profit for so

doing, and paying the price of the same to the receiver of the present Company for distribution amongst the secured creditors. New capital is to be brought in on shares or on income bonds, which are to be offered first of all to the preference shareholders and afterwards to the ordinary shareholders.—Dr. Duncan advocated a searching investigation into the affairs of the Company, and moved an amendment in favour of compulsory winding up. He said that at the very time the Directors were borrowing money at from 10 to 22 per cent. interest in order to pay a 15 per cent. dividend they had the audacity to ask the public to subscribe for ordinary shares at a premium of 5s. each.—Mr. Squire (chairman of the Investigation Committee) replied to the Board's printed observations on the Committee's report which had been sent to the shareholders. He said that, however much the Directors might quibble about each item by itself, the solid fact remained that they had induced the shareholders for two years to believe that the Company was doing well and making substantial profits, whereas in the third year they had to confess that they had muddled away the whole of the ordinary capital.—(Cheers, and a voice, "Shame.")—In the course of a long discussion Mr. Maddison said he had been told by the receiver that there was a good backbone to their business.—The amendment was lost, and the original motion carried without dissent.

Messrs. Young and Pilling were both nominated as liquidators. On a show of hands Mr. Pilling was declared elected. A poll was demanded and Mr. Young elected voluntary liquidator. The scrutineer entered a protest on behalf of Mr. Pilling against the proxies used in Mr. Young's favour.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

F. B. G.—We are not able to assist you in the matter, unless it is to remind you that in chemical and other works, where it is obtained as a bye-product, it is thrown away.

A. N.—Thanks for your letter.

F. B.—We cannot say.

H. H.—We are obliged by your explanation.

W. W. AND CO.—They were sent on to your client.

K. B., C. T. K., R. H., H. AND CO.—Thanks for notification, the necessary changes have been made.

MANURE (France).—There is a considerable difference, the ash is nearly pure phosphate of calcium and much dearer. It is chiefly, in fact almost solely, obtained from the continent.

TIPS FOR TRADERS.

COMMERCIAL TRAVELLERS of any other nationality except Swedes and Norwegians, travelling in Sweden, must obtain a licence to travel from the local authorities. The cost of the licence is £5. 11s. for each calendar month or part of a month.

THE SUBMARINE CABLE between Marseilles and Tunis, has been landed at Goletta, and a message sent through it from the French President to the President of the Republic.

COAL PRODUCTION is on the increase in Russia, and likewise the exports of the same, the shipments being 100,000 tons more last year than they were in 1890.

PAPER MANUFACTURERS in Germany are surfeited with orders. CELLULOSE WORKS are very busy making, chiefly for export to the United States.

GALVANISED ROOFING is wanted in China, as a revolution has recently been brought about in the construction of roofs in Chinese houses. The old method is being abandoned and substituted with roofs of galvanised sheets.

TARIFF CHANGES.

There are from time to time many alterations in the customs regulations abroad, which it is as well for those trading in chemicals, paints, oils, and raw materials, to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

PALM NUTS are exempt from duty under the 565th paragraph of the new tariff of the United States.

MURIATE OF APOMORPHIA is dutiable under the same tariff at 25 per cent.

PAPER PULP made in imitation of Lincrusta is also dutiable at 35 per cent.

VEGETABLE OILS are subject to a duty of 12 cents per kilogram under the new customs tariff of the Argentine Republic.

STEARINE is dutiable at 14 cents per kilogram.

MATCHES (wooden) at 40 cents per kilogram.

SODA CRYSTALS are admitted *free* into New South Wales, and are not subject to a duty of 40s. per ton, as stated in the Official Tariff, as at first published.

Trade Notes.

CHANGE OF ADDRESS.—We learn that Messrs. R. Huth & Co., chemical merchants, of Glasgow, have changed their address to 61, Mark Lane, London, and have also made an alteration in their telegraphic address, which will be "Cuprum, London," in future.

BASIC LINING FOR FURNACES.—A composition for lining furnaces which is patented is prepared in the following way: Carbonate of barium, along with either magnesia, alumina, or bauxite, is mixed with graphite in a suitable form, or silicate of soda, and the whole submitted to pressure and baked.

AN INSULATING COMPOSITION.—An insulating composition, which may be turned and polished, can (according to a recent patent) be prepared by mixing powdered slate and soapstone into a paste, with an alkaline silicate. The mixture is then slowly dried and immersed in a solution of calcium chloride, or first in an alkaline stearate and then in a solution of alum, and afterwards in either case dried at a slow heat. The articles may, if so desired, be saturated subsequently with tar, bitumen, or paraffin.

PRECIPITANT FOR SEWAGE AND WASTE WATERS.—A precipitant for purifying sewage, and other waste waters and drinking water, is prepared by adding hydrated oxide of iron to a solution of perchloride or persulphate of iron. The composition may also be obtained by adding an alkali, or alkaline earth, to the perchloride or persulphate. The preparation of the composition in this manner is patented.

DAMAGES AGAINST A SEWAGE FARM.—At the Derby Assizes, a short time since, before Mr. Justice Day and a special jury, the case of *Rev. R. G. Buckstone v. Burton Corporation* was heard. The plaintiff and others gave evidence of the obnoxious smells which emanated from the farm, which were so powerful that they could at times be distinguished as far as nine miles away from the farm. Defendants' case did not deny the existence of a nuisance, but contended that plaintiff had suffered no material injury or inconvenience. The jury found a verdict for plaintiff for £200, and the judge granted a second injunction, suspended until July 1, for the abatement of the nuisance. In a similar case heard the day previous a verdict was given in favour of Mr. Homer Mole, who resides near the farm, with £300. damages.

JANUARY COPPER RETURNS.—Subjoined are the Customs imports and exports of copper for the month, of January reduced to a common denominator and compared with the same figures in 1892:—

	1893.	1892.
	Tons.	Tons.
Copper in Pyrites	1,493	1,401
" Ore.....	821	891
" Regulus	3,694	3,327
" Precipitate	2,365	1,746
Foreign raw Copper	8,373	7,365
Imports, January.....	2,811	3,969
Exports, January.....	11,184	11,334
Exports, January.....	5,523	5,590

AGRICULTURAL EDUCATION.—Recently, a deputation from the University College, Aberystwith, the Yorkshire College, and the Durham College of Science, waited on Mr. Herbert Gardener with reference to the grants in aid of technical instruction in agriculture. The success which was attending this work, especially in Wales, was laid before Mr. Gardener, who expressed his sympathy with the efforts

which were being made to extend practical and scientific agricultural education. He admitted the advantage of State endowment in lieu of annual grants, but he said he thought there was no reason for apprehending the withdrawal of the grants. He thought also that though agriculture had not benefited perhaps as much as it might have done from the way the Technical Instruction Act had been administered by the County Councils, still in his opinion a debt of gratitude was owing to the efforts which the County Councils had made. Both Mr. Ackland and himself were willing to consider any scheme transferring the disposal of such grants to the Science and Art Department and the Agricultural Board.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market remains in much the same state as reported last week. 50's benzol is variously reported as being value for 1s. 6d. to 1s. 7d., while 90's are certainly not worth more than 1s. 8d. at the outside. Most other tar products remain the same, though B anthracene is stated to be worth 1s., however, this is without confirmation. After Manchester 'Change on Tuesday last a meeting of the coal-tar syndicate was held, but nothing transpired of moment, except it be the general complaint of the paucity of orders and the difficulty of maintaining old prices.

The sulphate of ammonia market remains very firm, and £12. 15s. to £12. 16s. 3d. seems easily obtainable. There is no disguising the fact that sulphate is extremely scarce, and though second-hand Beckton has been sold for next month at £12. 5s. there is none in sight, and it will certainly be surprising if whatever has been sold can be covered for much less than £13. There is no doubt an endeavour will be made to use the holiday time for depressing prices, but makers have the situation entirely in their own hands.

MISCELLANEOUS CHEMICAL MARKET.

Business in the alkali trade is fairly active. Bleaching powder, in particular, continues in strong demand for export, and price is firmly maintained, both for prompt and forward deliveries. With the tendency of the market in the direction of lower prices for alkali, it is only reasonable to expect that the price of bleaching powder will be firmly maintained, apart from any special demand. Caustic soda is quoted as for some time past, viz.: 77% f.o.b., Tyne, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s.; 10 ton lots and upwards. Soda ash, in various qualities of leblanc make, is to some extent feeling the competition of ammonia alkali. The present prices for leblanc makes rule from 1½d. to 1¾d. per degree at works, and ammonia alkali 58% 1½d. to 1¾d. per degree f.o.b. Soda crystals quiet, and price £2. 12s. to £3. per ton, according to package. Chlorate of soda and potash are still in good request and short supply, prices being firmly maintained. Recovered sulphur £4. 2s. 6d. f.o.r. maker's works. In vitriol and muriatic acids the trade is up to the average, and prices are normal. Stocks of salt cake are in excess of requirements, and price is consequently low, varying from 21s. to 25s. per ton, at makers' works, according to district. Sulphate of copper is steady in price. In potash, caustic, and carbonates the tendency of the market is still in the direction of lower prices, and demand is rather slack. Acetates of lime, brown and grey, are exceedingly quiet, but prices seem to have touched the bottom. Oxalic acid still selling at 3d., with varying discounts. Yellow prussiate of potash slightly easier; nominally quotations are from 9¾d. to 10d. per lb. Carbolic acids in all grades are rather improved, and demand is sufficient to maintain prices meantime, and to encourage expectations of further advances as the season progresses. In general chemicals, especially for home trade, the reports of the condition of trade in all districts are still far from satisfactory.

REPORT ON MANURE MATERIAL.

Throughout the week there has been a good business doing for prompt and early delivery at prices somewhat against buyers.

Manure makers being fully occupied in distribution we do not hear of any important business in mineral phosphates for forward shipment, and quotations remain without alteration. There is enquiry for grinding bones, arrived or near at hand, and good clean parcels would fetch

£3. 15s. to £3. 17s. 6d. ex quay Liverpool. Near at hand River Plate bones are worth about £4. 2s. 6d. United Kingdom Continent; for summer-autumn shipment there is not as yet enquiry. Crushed Kurrachee bones for shipment are selling at 3d. ex quay Liverpool; on spot £4. 2s. 6d. to £4. 5s. would be paid ex store. There is more demand for Bombay bone meal after sales ex quay at £4. 5s. and £4. 7s. 6d. ex store, £4. 10 required ex store.

Nitrate of soda is a very firm market, on spot 10s. 3d. now for ordinary quality, and 10s. 4½d. for refined. Due cargo worth 10s. 3d. to 10s. 4½d., according to size and test; early sailings may be had at 9s. 9d., and late January at about 9s. being very little inclination to buy anything that will require a cover for next season.

There is nothing special to report in other nitrogenous materials.

THE METAL MARKETS.

LONDON, TUESDAY.—Pig iron quiet. Scotch warrants at 40s. 9½d. cash. Middlesbrough 34s. 4d. cash, and Bena 7½d. cash. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s £45. 6s. 3d. to £45. 13s. 9d. cash, and £45. 13s. 9d. to £46. three months. Tin quiet. Straits closed at £94. 15s. to £94. 15s. to £91. 10s. to £92 three months. Australian, £95. 5s. English ingots, £97. 10s. Lead, firmer; Spanish, £9. 16s. £9. 17s. 6d. English £10. to £10. 2s. 6d. Silesian spelter: On £17. 15s. to £17. 10s. Nickel, 15. 9d. per lb. Antimony Quicksilver: First hands, £6. 10s. second hands, £6. 8s. shares steady: Cape, 1½ to 1¾. Copiapo, 2½ to 2¾. Lillo 3¼. Mason and Barry, 2½ to 2¾; Rio Tinto, 15½ to 15¾; 4½ to 4¾; Namaqua, 1 to 1¼; Panulcillo, 1½ to 1¾.

GLASGOW, TUESDAY.—Market practically idle. Scotch at 40s. 10d. cash; closing with buyers at 40s. 9½d. cash, 11½d. one month; sellers ask ½d. more. Middlesbrough close buyers at 34s. 4d. cash and 34s. 6d. one month; sellers ask 10 Hematite closes with buyers at 45s. 7½d. cash; sellers ask 46

TYNE CHEMICAL REPORT.

Chemicals are in rather better demand and shipments are being more freely. Caustic soda, 76/77%, £10. 15s. to £11. per ton; Bleach scarce at £8. 5s. per ton, softwoods. Soda crystals, 6d. per ton locally, lower for some of the distant ports; steady at £4. 2s. 6d. per ton.

Bleaching powder, softs, £8. 5s. per ton nett; hard, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; 50% 48%, £4. 12s. 6d. per ton, 52%, £4. 16s. 3d. per ton, 56%, £4. 10s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton; 6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton weight; chlorate of potash, 10d. per lb. less 6%; pearl hard £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of £33. 15s. per ton net; in 5 ton lots, £28. 10s.; hydrate of £10. per ton net.

South Durham salt is still 9s. per ton, f.o.b. Tees.

Coals: Prices are a shade better all round, and more business. Best Northumbrian steam steady at 8s. 6d. per ton; second 8s. per ton; small steam, 3s. to 3s. 3d. per ton; gas coals fairly 6s. 3d. to 6s. 6d. per ton; coke unchanged, 14s. to 14s. 6d. per

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY

OILS.—Palm oil is quiet and the business passing is small, have been made at £28. during the week. Olive continues though in small request at £34. to £42. per ton. In linseed pool refined, there is not much doing, but sellers are firm at 21s. 6d. per cwt. Rape is quiet with refined Stettin at 29

per cwt. Cottonseed having been at 23s. 6d. to 24s. 6d. part of the week, is to-day firmer at 24s. to 25s. per cwt. very steady, good seconds Calcutta 2½d. to 2½d.; first ench 2½d. to 2½d. per lb. Tallow is more enquired for, little doing, and values are unaltered. Resin, common, ty freely at 4s., other grades fetch full prices. Spirits of are quiet at 24s. 9d. per cwt. on spot. Petroleum: ¼d. to 6d., according to quality. Russian refined, 4½d.

RS rule very steady. Ochres: Oxfordshire, common, £10., 12., best, £15.; Derbyshire, common, 40s.; medium, 50s., Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s.; Turkish quiet. Devonshire, 50s. to 55s. White lead, red xide of zinc unchanged. Venetian red, £6. 10s. to £10. repared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, 10., £10.; finest, £20. Zinc oxide, £22. to £23.

THE LIVERPOOL MINERAL MARKET.

ket this week has ruled steady. Manganese continues rate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. lorida, £15.; carbonate, £12. 10s., steady. Magnesite quiet, and prices are unchanged; calcined £12. 10s. ish Hill brand) brisk at full prices; lump 20s., seconds 12s. French chalk: Arrivals are below the average, and unchanged, both for "Angel White" brand and "Silvery." carbonate, very scarce; nuts, 70s. to 80s.; finest white in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, land slow. Santander and manganiferous quiet. Emery. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. h steady; best lump, 55s.; fine impalpable ground, £7.; ground, 80s. Scheelite, wolfram, tungstate of soda, and etal are in good demand, but there is no change to report Chrome ore, best qualities, are in good demand, and prices mony ore steady at £12., and metal £43. to £45. Asbestos Potters' lead ore, smalls, £10. 10s. to £11. Calamine phate (celestine) quiet. Limespar steady, especially for ufactured; old G.G.B. brand in demand at 50s. (ground). et. Fluorspar: Best quality scarce. Ferro-manganese in l. Plumbago: Spanish, £5.; best Ceylon lump at last Italian and Bohemian, £4. to £12. per ton; "Founders," Blackwell's "Mineraline," £10. French sand, 20s. to 40d. mica, £45. to £50. China clay steady, common, good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

BEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

bate of ammonia market continues phenomenally strong, as £13. was last week paid, in Glasgow, for one special as been denied, but there is evidence that it really took the few holders asked £12. 17s. 6d. confidently for prompt. A good many forward bargains (May-September) have at £11. 2s. 6d. to £11. 5s. Dealers find that the call for comes just now chiefly from home consumers, continental ng to a minimum.

n there is felt a slight further firmness as to scale and wax, the latter, some sales having been made to the Continent ory terms. Paraffin spirit is lower again, at 4¼d., and has now seen the last of its annual season. Light gravity oils (865°) have been rising, and the heavier grades, though ged, will feel beneficially the resumption of mill work in a circumstance which will at the same time greatly relieve dyeing and calico printing factories, so long hampered for erial.

et for staple chemicals is unaltered, and therefore sluggish, g about the only exception.

ees current are:—Soda crystals, £2. 10s. nett Tyne; 2s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; p, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. erpool; bleaching powder, £8. 5s. nett Tyne; saltcake, orax, English refined, £30., and boracic acid, £37. nett

Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 9¼d., less 5% Liverpool; nitrate of soda, 10s. 4½d.; sulphate of ammonia, spot £12. 15s. to £13. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1¼d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 865°, £3. 15s., to £4.; 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 26,108 bags.

THE COPPER MARKET.

Messrs Harrington and Co., in their fortnightly report dated Liverpool, March 17th, 1893, state:—

Chili Charters.—The quantity for the last fortnight of February had been estimated as 1,000 tons, but when cabled turned out to be only 150 tons; the quantity for the first fortnight of the month has been cabled as 850 tons. Exchange 16¼d. Total Charters since December, 1892, are 4,000 tons; same time last year 4,950 tons. Sales of G.o.b.'s and G.m.b.'s during the past fortnight amounted to about 8,000 tons, prices continually vacillating but to no great extent; cash warrants not exceeding £45. 11s. 3d., and only once declining to £45. 2s. 6d. For three months prompt values ranged from £45. 12s. 6d. to £46., and we close to-day at £45. 5s. and £45. 13s. 9d. respectively. *Anaconda Matte.*—There have been no arrivals since February 7th, and no Anaconda Produce of any description will be available for this market for several months to come. The last sale of Anaconda Matte was made on August 26th, 1892, for forward shipment. *Montana Matte.*—During the past fortnight a considerable quantity has been sold for early and forward shipment, the greater portion being Argentiferous, and the Copper contents obtaining from 9s. 1½d. to 9s. 7½d. per unit, according to the description of the Matte. We estimate the quantity sold at about 5,000 tons, and various parcels, spot, early and forward shipment, are still available, but smelters being pretty well supplied sales have become more difficult.

The total exports from Chili for 1892 were 22,638 tons, against 20,135 tons in 1891. The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 1,678 tons for the fortnight. The stocks include about 2,300 tons of Copper sold, but not yet delivered to smelters. The visible supply shows a decrease of 1,513 tons for the fortnight. The total deliveries for the fortnight are 3,335 tons. The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 631 tons, against 872 tons on the 1st inst. The delivery in Liverpool and Swansea was 246 tons, but 5 tons being returned in Liverpool makes the decrease 241 tons for the fortnight.

Refined and manufactured sorts are steady. Quotations being:—Tough cake £48. to £48. 10s., best select £49. 10s. to £50., Indian sheets £53., strong sheets £57. to £58., and yellow metal sheets 4¾d. per lb.

The sales of furnace material, with the exception of Montana Matte, comprise—570 tons Chili ore, of 14 per cent., to arrive, Swansea, at 8s. 6d.; 410 tons Chili regulus, spot, Swansea (re-sale), at 9s. 0¼d.; 600 tons, to arrive, Swansea, at 9s. 1½d.; 50 tons Norwegian ore, 8 per cent., at 8s. 6d.; 200 tons Portuguese ore (low produce), at 8s. 6d.; and 105 tons Australian matte, to arrive here, at 9s. 1½d. per unit.

New Companies.

Mexican Asphalte Pitch and Oil Wells, Ltd.—CAPITAL, £75,000. in £1. shares. This company has been formed to purchase and work asphalte deposits and oil wells in various places in Mexico, and to trade as pitch manufacturers, oil distillers and refiners. The subscribers to the memorandum of association are:—F. Meadows, St. Peter's Park, W., accountant's clerk; K. Richards, 50, Ashbourne Grove, S.E., accountant; V. W. Jones, 16, Cowley-street, S.W., gentleman; E. Ball, Barnsbury, gentleman; S. M. Scullin, Haverstock Hill, N.W., musician; A. E. Cuthbert, St. Peter's Park, W., gentleman; J. Jeffery, 30, Russell-square, gentleman.

Silicate Cotton Co., Ltd.—CAPITAL, £5,000. in £10. shares. This company has been formed to purchase and acquire any concession, rights, or privileges for the manufacture of slag wool or silicate cotton, and to continue to carry on any business so acquired.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Red Oxide Paints. M. N. D'Andria. 5,349. March 13.
Manufacturing Ice and Refrigerating Apparatus. D. Clerk. 5,358. March 13.
Manufacture of Sulphuric Acid. F. J. R. Carulla. 5,365. March 13.
Manufacture of Oil Gas. J. Moeller. 5,384. March 13.
Improved Detergent. A. C. Irwin and S. Wohlf. 5,385. March 13.
Dialzo Colouring Matters. S. Pitt. 5,407. March 13.
Maturing Spirits, Liqueurs, etc. H. Hill. 5,409. March 13.
Jacketed Glass Tubes and Vessels. W. Seume. 5,518. March 14.
Apparatus for the Electrolytic Decomposition of Solutions of Sodium and Potassium Chloride. T. J. Holland. 5,525. March 14.
Filtering and Purifying Water. E. Winkler. 5,619. March 15.
Artificial Citric Acid. C. Wehmer. 5,620. March 15.
Manufacture of Soap. J. Peacock and W. B. Colls. 5,621. March 15.
Kneading and Mixing Machines. P. Pfleiderer. 5,622. March 15.
Production of White Lead. T. H. Cobley. 5,675. March 16.
Filtering Sewage. B. Rushford and J. Edwards. 5,689. March 16.
Colouring Matters. O. Imray. 5,690. March 16.
Acid Colouring Matters, being Sulphonic Acids of Alkyl Derivatives of Diamido-diphenyl-metatoyl-carbinol. O. Imray. 5,691. March 16.
Thionine Colouring Matters Dyeing on Mordants. O. Imray. 5,692. March 16.
New Colouring Matters. J. H. Ziegler. 5,693. March 16.
Apparatus for the Electrolytic Decomposition of Solutions of Sodium and Potassium Chloride. J. R. Richardson. 5,694. March 16.
Artificial Stone. R. S. Strong and A. Gordon. 5,711. March 16.
Manufacture of Bleaching Solutions by Electrolysis. A. J. Boulton. 5,778. March 17.

Smoke Consuming Apparatus. A. J. Boulton. 5,781. March 17.
Filters. J. Dixon. 5,785. March 17.
Obtaining Chlorine from Spent Liquors of Soda Ash, Brine, etc. Apparatus for making Chloride of Lime therefrom. H. Cassel. Bannison, S. Hayes, and P. Smallwood. 5,849. March 18.
Softening and Purifying Water. C. H. Fitzmaurice. 5,855. March 18.
Acid Esters of Creosote, Guajacal, and Creosol. C. D. Ald. March 18.

GERMAN PATENTS for week ending MARCH 25th, 1901

Specially abstracted by Dr. H. Zerener, civil engineer, the Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to at once protest against the of such new Patents as may collide with the interests of industry.

12 C. 3,956. Apparatus for Producing Oxygen, by Patent 3,956. Claus and J. A. Elsner, London.
12 C. 4,357. Columnar Stills, suitable also for Absorption. T. O. Co., Bielefeld.
16 P. 6,022. Preparation of Aluminium-phosphate soluble in Aluminic acid. Soc. Pilon Freres et Buffet, Paris.
22 W. 8,070. Preparation of White Lead. E. Waller and C. A. Salt. York.
22 F. 6,099. Preparation of Naphthalene Poly-sulphonic Acid. fabriken vormals F. Bayer & Co., Elberfeld.
26 G. 7,500. Apparatus for Producing Gas from Petroleum and Hydrocarbons. J. M. Goldsmith, Chicago.
40 M. 9,363. Extracting Gold and Silver from Dry Silver Ores, Pyrites, and Arsenic Ore. Dr. Ernst Bruno, Mierisch, Central Am.
75 L. 7,805. Preparation of Aluminate of Magnesium containing boric acid. Dr. F. Loewig, Greuenbroich Rheinprovinz.
89 Sch. 8,091. Preparation of Soluble Starch. W. Angele, Berlin.
12 Sch. 8,390. Preparation of Cresols easily Soluble in Water. and Mayer, Hamburg.
42 A. 3,331. Finding the Percentage Volume of certain Gaseous Mixtures of Gases. Max. Arndt, Aachen.
53 F. 6,345. Preparing Peptones Free from Albumen. Farbwerke Meister Lucius and Brüning, Höchst-a-Maine, Germany.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 18th.

Acetic Acid—
Holland, 225 pkgs. Beresford & Co.
" 100 A. & M. Zimmermann
Acetone—
Holland, 2 pkgs. R. W. Greeff & Co.
Alkali—
France, 230 c. Arnati & Harrison
Belgium, 54 G. Haller & Co.
Alum—
Germany, 33 pkgs. R. G. Hall & Co.
Alumina Sulphate—
Germany, 93 pkgs. Tough & Henderson
Aluminium—
France, £100 Major & Field
Ammonia (Liquid)—
Holland, 6 drs. Comp. Mar. Belge
Antimony—
Salonica, 50 t. J. Bamber
France, 3 B. & F. Wf. Co., Ltd.
Portugal, 50 J. Bamber
A. Turkey, 100 French & Smith
Australia, 53 J. J. Pratt & Son
" 53 W. B. Marcus
San Francisco, 110 t. Pillow, Jones, & Co.
Arsenic—
Germany, 30 pkgs. Burgoyne & Co.
Asbestine—
U. States, £27 Brasch & Rothenstein
Asbestos—
France, £9 Mory & Co.
Italy, 85 Tingle, Jacobs, & Co.
" 3,300 W. Byford
" 327 Brit. Asbestos Co.
Holland, 28 Philipps & Graves
Barytes—
Germany, 20 cks. G. Steinhoff
Holland, 56 J. L. Lyon & Co.
Germany, 24 O'Hara & Hoar
Belgium, 8 J. L. Lyon & Co.
" 55 Magee, Taylor, & Co.
Germany, 57 W. Fenton
" 131 W. Harrison & Co.
Holland, 69 Magee, Taylor, & Co.

Bromide of Iron—

Germany, 5 pkgs. A. & M. Zimmermann

Caoutchouc—

E. Indies, 53 c. Prop. Bull Wf.
France, 22 Flageolet & Co.
" 10 L. & I. D. Jt. Co.
Zanzibar, 15
" 23 Clarke & Smith
E. Indies, 12 Lewis & Peat
Carthage, 130 Prop. Bull Wf.
Madagascar, 29 S. Figgis & Co.
U. States, 16 V. Chautard & Co.
U. S. Columbia, 51 c Prop. Bull Wf.
E. Indies, 130 c E. Barber & Co.
Madagascar, 27 Brookes & Green
U. States, 54 Hopkins, Ford, & Co.
Hong Kong, 94 J. Walker & Co.
" Prop. Bull Wf.

Castor Oil—

Holland, 25 pkgs. H. & G. Duffield
Spain, 47 Burt, Boulton, & Co.

Carbolic Acid—

Holland, 25 pkgs. H. & G. Duffield
Spain, 47 Burt, Boulton, & Co.

Castor Oil—

Italy, 15 cks. L. & I. D. Jt. Co.
France, 25 brls. H. Johnson & Sons
Italy, 20 cs. Major & Field
" 40 R. Morrison & Co.
" 10 B. & N. Whvs. Co., Ltd.
" 5 A. & M. Zimmermann
E. Indies, 473 Anderson, Weber, & Smith

Castor Oil—

France, 30 brls. Beresford & Co.
Belgium, 30 Fuerst Bros.
Italy, 30 cs. H. Grey, jun.
" 10 Hodgkinson & Co.
" 5 Potter & Clarke
" 20 Stebbing & Co.
" 473 Anderson, Weber, & Smith
" 10 May, Roberts, & Co.
" 15 Langton, Hicks, & Co.
France, 58 brls. Fuerst Bros.
Belgium, 30 Burrell & Co.

Caustic Potash—

France, 30 drs. Carey & Sons
" 166 c. F. W. Berk & Co., Ltd.

Caustic Soda—

Holland, 100 c. Beresford & Co.

Chemicals (otherwise undescribed)

Germany, 62 pkgs. T. H. Lee
" 47 A. & M. Zimmermann
" 6 cks. W. Burton & Sons
" £12 L. & I. D. Jt. Co.
Holland, 7 Bratby & Co.
" 11 pkgs. R. Morrison & Co.
Germany, 2 Philipps & Graves.
Italy, 6 A. Laming & Co.

Citrate of Lime—

Italy, 10 pkgs. Thames S. T. & L. Co., Ltd.

Cream of Tartar—

France, 12 pkgs. W. C. Bacon & Co.
Holland, 7 Middleton & Co.
" 32 B. & F. Wf. Co., Ltd.
France, 5
" 3 E. W. Carling & Co.

Dextrine—

Germany, 50 pkgs. M. D. Co.

Dyestuffs—

Anthracene
Spain, 345 pkgs. Burt, Boulton, & Co.
Argols
Italy, 75 pkgs. Thames S. T. & L. Co., Ltd.

Extracts

France, 51 pkgs. Prop. Chmbln's Wf.
" 143 pkgs. Carey & Sons
" 1 Bennett S. S. Co.
Denmark, 8 Bailey & Leatham
" 2 R. J. Fullwood & Bland
Belgium, 10 Sawyer, Sons, & Co.
France, 200 B. & F. Wf. Co., Ltd.
" 165 L. J. Levinstein & Sons
Denmark, 1 F. Braselmann
Norway, 5 W. E. Bott & Co.

Gambler

E. Indies, 673 pkgs. Brown & Elmslie
" 630 L. & I. D. Jt. Co.

Indigo

E. Indies, 30 chts. Arbuthnot, Latham, & Co.
" 151 Ross & Deering
" 86 Elkan & Co.
" 2 F. W. Heilgers & Co.

Java, 11 L. & I. D.
E. Indies, 347 Standard

" 4 Anglo-Asian
" 445 L. & I. D.

" 10
" 5 F. M.
" 35 Bensche, Souda
Manila, 189 S. Figg
E. Indies, 46 W. Brandt, 50
" 159 R. Von Gicht

Madder
France, 2 pkgs. Sellen

Myrabolams

E. Indies, 2,000 pkgs.

Orchella
E. Indies, 126 pkgs. Lewis
Ceylon, 11 Prop. 1
Portugal, 30 Prop. 2

Sumac
Italy, 500 pkgs. Sellen
" 500 J. Kitchin
" 100 F. 1

Tanners' Bark
U. States, 7 t. J. Bamber
N. Zealand, 29 Beresford
Belgium, 49 Land

Turneric
E. Indies, 15 pkgs. Comp. L.

Valonia
A. Turkey, 163 t. A. & W. J.
" 110 Hicks, Nash
" 50 Boucher, Mer

" 420 F. Hall

Farina—
Holland, 50 pkgs. J. Kell

French Chalk—
Italy, £175 Magen, Taylor

Glucose—
Germany, 300 pkgs. 200 c. B.

" 95 200 c. F. Hall

" 116 120 c. J. Burt
" 200 200 J. J.

250 250 Trier, Meyer,
& Co.
339 740 Prop. Chamblin's
Wf.
250 250 Humphrey & Co.
100 598 Fuerst Bros.
501 501 L. & I. D. Jt.
Co.
8 40 Beck & Pollitzer
50 275 T. M. Duche &
Sons.
50 300 R. G. Hall & Co.
501 501 Fellows, Morton,
& Co.
300 1,655 L. Sutro & Co.
2,000 2,000 Union L. Co.,
Ltd.
720 720 L. Norman
& Co.

ne, 100 t. Anglo Contl. G. Wks.

es, £19 J. B. White & Bros.

etate—

ay, 15 pkgs. F. Boehm

16 C. J. Capes & Co.

la—

1 pkg. L. & I. D. Jt. Co.

rese—

es, 100 t. Macqueen Bros.

109 t. Williams, Torrey,
& Co.

ne, 136 Anglo Contl. G. Wks.

ay, 106 F. W. Berk & Co., Ltd.

10 R. W. Greeff & Co.

es, 10 J. B. White & Bros.

10 Anglo Contl. G. Wks.

Alcohol—

es, 200 brls. J. Kertel

es, 150 Craven & Co.

es, £275 W. M. Smith & Sons

es, 275 Hale & Son

es, 25 W. M. Smith & Sons

194 cks. S. Ward & Co.

83 pkgs. W. Harrison & Co.

3 Philipps & Graves

Acid—

es, 10 pkgs. B. & F. Wf. Co.,
Ltd.

es' Colours—

es, 25 pkgs. L. & I. D. Jt. Co.

ay, 7 1 cs. Herni, Peron,
2 8 cks. L. & I. D. Jt.
Co.

es, 15 W. Caudery & Co.

ay, 12 A. Zumbek & Co.

ay, 27 Flageolet & Co.

ay, 20 G. Steinhoff

ay, 1 Craven & Co.

es, 1 R. Morrison & Co.

es, 2 cs. H. Gluck & Co.

ay, 4 cks. H. Lambert

ay, 10 Philipps & Graves

ay, 2 L. C. & D. Ry. Co.

ay, 47 T. Palmer

Wax—

es, 933 brls. H. Hill & Sons

es, 550 155 cs. 2,608 pkgs.
J. H. Usmar & Co.

ate Rock—

ay, 50 t. A. Hunter & Co.

ay, 150 brls. E. W. Fischel
& Co.

ay, 7 Poth, Hille, & Co.

go—

ay, 60 brls. R. G. Hall & Co.

ay, 35 cs. T. H. Lee

ay, 50 Prop. Scott's Wf.

ay, 2 cks. Acton & Borman

ay, 25 cs. J. Sinclair & Son

ay, 116 c. F. W. Berk & Co.,
Ltd.

um Bicarbonate—

ay, 30 c. A. & M. Zimmermann

um Carbonate—

ay, 10 cks. Beresford & Co.

ay, 106 c. F. W. Berk & Co.,
Ltd.

ay, 100 J. A. Reid

ay, 110 Mead, Son, & Co.

ay, 2 Beresford & Co.

Potassium Chloride—
Germany, 508 pkgs. Anglo Contl. G.
Wks.

Potassium Oxalate—
Norway, 67 pkgs. F. Boehm

Potassium Sulphate—
France, 500 pkgs. F. W. Berk & Co.,
Ltd.

" 42 L. & I. D. Jt. Co.

Pyrites—
Spain, 2,115 C. Tennant, Sons, & Co.

Rosin—
Holland, 4 brls. T. H. Lee

Sal Acetone—
Norway, 14 pkgs. B. & F. Wf. Co.,
Ltd.

Saltpetre—
Chili, 12,181 bgs. Anglo Contl. G.
Wks.

Germany, 113 cks. P. Hecker & Co.

" 9 Brown & Elmslie

Sheep Dip—
U. States, 110 pkgs. Allan Bros. & Co.

Sodium Acetate—
France, 27 pkgs. S. F. Waters
& Co.

Sodium Chlorate—
France, 50 pkgs. A. Hughes

Sodium Nitrate—
Germany, 3 pkgs. Page, Son, & Co.

Stearine—
Belgium, 10 bgs. W. Meyerstein
& Co.

Holland, 114 H. Hill & Sons

Sulphur—
Italy, 5 t. J. T. Morton

" 20 A. B. Curtis & Co.

" 2 Galbraith, Pembroke,
& Co.

" 5 J. Puddy & Co.

" 100 Johnson & Hooper

Tallow—
Melbourne, 100 cks. Ross & Deering

Belgium, 1 G. Haller & Co.

" 20 Sawyer, Sons, & Co.

" 1 Magee, Taylor, & Co.

U. States, 195 W. Balchin

Tallow and Stearine—
France, 25 pks. Williams, Torrey,
& Co.

Tartaric Acid—
Holland, 16 pkgs. B. & F. Wf. Co.,
Ltd.

Turpentine—
France, 25 cks. T. Trapp & Sons

Ultramarine—
Holland, 2 pkgs. G. Rahn & Co.

" 5 cs. J. H. & G. Scovell

" 6 Philipps & Graves

" 10 pkgs. Haefner, Hilpert,
& Co.

Belgium, 19 W. Harrison & Co.

Germany, 8 brls. Leach & Co.

Germany, 20 cs. G. Steinhoff

Varnish—
U. States, 17 pkgs. Pinchin, Johnson,
& Co.

Belgium, 21 Beck & Pollitzer

" 3 Stobbs, Wilson, & Co.

White Lead—
Holland, 20 cks. G. Clifford

Germany, 20 Philipps & Graves

" 21 G. Clifford

" 40 Randall Bros.

" 5 H. Hodson & Co.

" 28 Burrell & Co.

" 220 G. Steinhoff

Holland, 11 Petri Bros.

" 19 Burrell & Co.

Germany, 30 Blundell, Spence, & Co.

Holland, 19 S. H. Willoughby

Holland, 19 N. J. Fenner & Co.

Belgium, 24 brls. Leach & Co.

Zinc Oxide—
Germany, 225 brls. M. Ashby, Ltd.

" 5 cks. Beresford & Co.

LIVERPOOL.

Week ending March 16th.

Acetate of Lime—
N. York, 2,021 bgs.

Acetic Acid—
Rotterdam, 10 ballns.

Alkali—
Rotterdam, 2 cks.

Alum—
Rotterdam, 1 ck.

Bone Meal—
Bombay, 531 bgs.

Boracic Acid—
Leghorn, 104 cks

Borate of Lime—
Antofagasta, 2,300 sks.

Chemicals (otherwise undescribed)
Rotterdam, 11 cks.

Colours—
Rotterdam, 20 cks. 5 cs.

Antwerp, 18 brls. J. T. Fletcher & Co.

Cream of Tartar—
Barcelona, 13 cks.

Marseilles, 10 brls.

Dyestuffs—
Cochineal

Gr. Canary, 12 bgs. G. S. Bruce

Extracts
New York, 50 bxs.

Nantes, 535 brls. Oak Extract Co.

Fiume, 218 De Clermont &
Donner

Indigo
Beyrout, 2 cs. J. Colea Freres

Myrabolams
Bombay, 4,486 bgs.

Orchella
Lisbon, 172 bdl.

Sumac
Palermo, 297 bls. 1,000 bgs.

Trieste, 20 brls.

Yalonia
Drogomestre, 180 t.

Trieste, 210 bgs. G. Axenduli

Patras, 312

Dyestuffs (otherwise undescribed)
New York, 7 cs. Cunard S. S. Co., Ltd.

Farina—
Fiume, 50 bls.

Antwerp, 84 cks.

Flowers of Sulphur—
Catania, 20 bgs.

Glucose—
New York, 100 brls. T. M. Duche & Son

" 190

Hamburg, 5 cks.

Manganese—
Poti, 4,390 t.

Mineral White—
Trieste, 30 bgs. J. B. Muschamp

Paint—
Boston, 25 cs. M. Nicol & Co.

" 33 G. Rolls & Co.

" 20 F. Leyland & Co., Ltd.

Philadelphia, 6 brls. 5½ brls.

Paraffin Scale—
New York, 165 brls. H. Hill & Son

Phosphate—
Trepert, 390 t.

Phosphate Rock—
Coosaw, 20,025 t. Phospho Guano Co.

Plumbago—
Genoa, 180 bgs.

Potash—
New York, 5 cks.

Rouen, 4 R. J. Francis & Co.

Pyrites—
Huelva, 1,854 t.

" 4,446 Tennants & Co.

Matheson & Co.

Rosin—
New York, 5 brls.

Saltpetre—
Kurrachee, 61 bgs.

Soap—
Rotterdam, 1 cs.

Marseilles, 2

Leghorn, 60 250 bxs.

Genoa, 40

Bari, 84

New York, 7 pkgs.

Soapstone—
Bordeaux, 500 bgs. 4 cs. G. G. Blackwell

Soda—
Rotterdam, 26 cks.

Hamburg, 3 brls.

Sodium Nitrate—
Pisagua, 8,450 bgs.

Iquique, 669 bgs. Hainsworth, Watson
& Co.

Stearine—
Rotterdam, 10 bxs.

Sulphur—
Catania, 1,800 bgs. H. Diaper & Co.

In transit, 106 pkgs.

Talc—
Bordeaux, 50 bgs.

Genoa, 80

Tallow—

Lisbon, 32 brls. J. Martin & Son

In transit, 10 brls.

Tar—
Naples, 3 cks. R. Powles

Tartar—
Rotterdam, 1 ck.

Naples, 8 cks.

Bordeaux, 9

Tartaric Acid—
Rotterdam, 28 cks.

Marseilles, 12

Messina, 8

Tin Oxalate—
Rotterdam, 6 cks.

Turpentine—
Trieste, 1 cs.

Ultramarine—
Rotterdam, 50 cs. 1 ck.

Yarnish—
New York, 5 brls. Henderson Bros.

" 5 P. Johnston & Co.

White Lead—
Rotterdam, 13 cks.

Wood Spirit—
Hamburg, 9 brls.

Zinc Oxide—
Rotterdam, 75 cks.

Antwerp, 37 brls. J. T. Fletcher & Co.

" 135

Hamburg, 92 cks.

Zinc White—
Rotterdam, 160 cks. O. & H. Marcus

HULL.

Week ending March 18th.

Acetic Acid—
Rotterdam, 8 bks. Hutchinson &
Son

Acid—
Antwerp, 10 bks. G. Myers

Rotterdam, 10 cbys. G. Lawson &
Sons

Alkali—
Flushing, 5 cs. 4 brls. Wilson, Sons &
Co., Ltd.

Aluminium—
Rotterdam, 1 ck. Hutchinson & Son

Antimony—
Hamburg, 1 cs. Wilson, Sons & Co.,
Ltd.

Asbestos—
Flushing, 1 bl. 5 cs. Wilson, Sons &
Co., Ltd.

Barytes—
Antwerp, 18 cks. 155 bgs. Bailey &
Leetham

" 46 H. F. Pudsey

Bremen, 46 Tudor & Sons

" 20 G. Holmes & Co.

" 23

Rotterdam, 197 cks. 100 bgs. Hutchinson
& Son

Antwerp, 102

Caoutchouc—
Hamburg, 12 cs. C. M. Lofthouse
& Co.

Carbolic Acid—
Danzig, 8 brls. Wilson, Sons &
Co., Ltd.

Chemicals (otherwise undescribed)
Bremen, 5 cks. 1 cs. 1 pot. Veltmann
& Co.

Dunkirk, 117 pkgs. Wilson, Sons & Co.,
Ltd.

Antwerp, 86

Colours—

Cryolite — Copenhagen, 7 cks.	Wilson, Sons & Co., Ld.
Dyestuffs — Alizarine Rotterdam, 9 cks.	W. & C. L. Ringrose
Flushing, 4 cs. 197 cks.	Wilson, Sons & Co., Ld.
Indigo Trieste, 7 bxs.	Wilson, Sons & Co., Ld.
Sumac Palermo, 175 bgs.	Wilson, Sons & Co., Ld.
" 350	
Farina — Harlingen, 1,125 bbs.	Wilson, Sons & Co., Ld.
Ghent, 210 bbs.	
Hamburg, 100 bgs.	Hutchinson & Son
Rotterdam, 20	Wilson, Sons & Co., Ld.
Antwerp, 30	
Glucose — New York, 150 brls.	
Stettin, 300 bgs.	
Iron Oxide — Trieste, 57 cks.	
Lead Acetate — Stettin, 14 cks. 62 brls.	Wilson, Sons & Co., Ld.
Ochre — Rouen, 99 cks.	Rawson & Robinson
Paint — New York, 30 cs.	Wilson, Sons & Co., Ld.
Boston, 50	
" 50	
Phosphate — Ghent, 80 t.	Wilson, Sons & Co., Ld.
Phosphate Rock — Port Royal, 1,200 t.	
Rosin — Rotterdam, 1 ck.	W. & C. L. Ringrose
Hamburg, 11 bgs.	C. M. Lofthouse & Co.
Saltpetre — Hamburg, 20 kgs.	
Soap — Bari, 2 cs.	Wilson, Sons & Co., Ld.
Soda — Rotterdam, 18 cks.	W. & C. L. Ringrose
Stearine — Hamburg, 109 cks.	Wilson, Sons & Co., Ld.
Rotterdam, 9 bgs.	
Strontianite — Rouen, 4 cks.	Wilson, Sons & Co., Ld.

Talc — Bordeaux, 50 bgs.	Rawson & Robinson
Tallow — New York, 440 trcs.	Wilson, Sons & Co., Ld.
Antwerp, 6 bgs.	"
Bergen, 60 brls.	
Tartar — Bordeaux, 1 ck.	Rawson & Robinson
Tartaric Acid — Rotterdam, 7 cks.	Hutchinson & Son
Tin Oxide — Rotterdam, 2 cks.	G. Lawson & Sons
Ultramarine — Rotterdam, 35 cks.	Hutchinson & Son
" 1 ck.	
Varnish — New York, 10 brls.	Wilson, Sons & Co., Ld.
" 120 cs.	
Hamburg, 5 dms.	"
Waste Salt — Hamburg, 555 bgs.	
White Lead — Antwerp, 51 cks.	Bailey & Leatham
Rotterdam, 13	Hutchinson & Son
" 10	F. Fewster & Co.
" 23	Tudor & Sons
" 13	Storry, Witty & Co.

GLASGOW.

Week ending March 23rd.

Alum — Hamburg, 97 cks.	
Arachide Oil — Rotterdam, 3 cks.	J. Rankine & Son
Barium Sulphate — Antwerp, 200 bgs.	
Barytes — Rotterdam, 72 cks.	J. Rankine & Son
Castor Oil — Antwerp, 31 cks.	
Colours — Amsterdam, 1 ck.	
Rotterdam, 1 pkge.	
Hamburg, 1 ck.	
Cottonseed Oil — New York, 5 brls.	
Dyestuffs — Alizarine Rotterdam, 12 cks. 23 brls.	J. Rankine & Son
Cutch Hamburg, 479 bgs.	
Extracts New York, 160 bbs.	
Rouen, 19 pkgs.	
Antwerp, 6 cks.	
Sumac New York, 50 bgs.	

Farina — Hamburg, 50 bgs.	
Glucose — New York, 550 brls.	
Phosphates — Ghent, 1,500 bgs.	
Potash — Rotterdam, 30 cks.	J. Rankine & Son
Potassium Chloride — Christiansund, 137 bgs.	
Pyrites — Christiansund, 20 t.	
Huelva, 1,556 t.	John Veitch
Rosin — New York, 2,000 brls.	
Sulphate of Lead — Rouen, 12 cks.	
Tallow — New York, 50 trcs.	
Tar — New York, 360 brls.	
Tartar — Oporto, 10 cks.	
Bordeaux, 5	
Ultramarine — Hamburg, 6 cs. 2 cks.	
Varnish — New York, 71 brls. 1 cs.	
Waste Salt — Hamburg, 135 cks.	
White Lead — Rotterdam, 27 cks.	J. Rankine & Son
Zinc Ashes — Nantes, 5 cks.	
Zinc Oxide — Rotterdam, 4 cks.	J. Rankine & Son
Antwerp, 20	

TYNE.

Week ending March 18th.

Alum Earth — Hamburg, 35 cks.	Tyne S. S. Co.
Colours — Hamburg, 1 ck.	Tyne S. S. Co.
Limestone — Antwerp, 2 cs.	Tyne S. S. Co.
Phosphate Rock — Port Royal, 2,501 t.	Langdale's Chem. Manure Co.
Plumbago — Hamburg, 19 cks.	Tyne S. S. Co.
Pyrites — Huelva, 2,655 t.	Scott Bros.
Salt — Hamburg, 254 bgs.	Tyne S. S. Co.
Saltpetre — Hamburg, 3 cks.	Tyne S. S. Co.

Soap — Rotterdam, 2 cs.	Tyne S. S. Co.
Sodium Nitrate — Pisagua, 2,200 bgs.	
Ultramarine — Hamburg, 10 cks. 12 Tys.	

GOOLE.

Week ending March 11th.

Alizarine — Rotterdam, 79 pkgs. 6 brls.	
Alkali — Calais, 14 cks.	
Alum — Rotterdam, 19 brls. 67 pkgs.	
Antimony — Boulogne, 6 cks.	
Caoutchouc — Boulogne, 4 cks.	
Dyestuffs (otherwise under)	
Boulogne, 7 cks. 8 cs. 25 pkgs.	
Ghent, 14	
Farina — Delfsahl, 2,375 bgs.	
Naphthol — Rotterdam, 4 brls.	
Pitch — Antwerp, 12 cks.	
Potash — Rotterdam, 41 brls.	
Dunkirk, 43 dms.	
Saltpetre — Rotterdam, 300 bgs.	
Hamburg, 4 brls.	
Soda — Rotterdam, 20 brls.	
Waste Salt — Hamburg, 608 bgs. 1,315 lbs.	

GRIMSBY.

Week ending March 11th.

Acetic Acid — Hamburg, 1 ck.	
Chemicals (otherwise under)	
Hamburg, 2 cks. 33 pkgs.	
Antwerp, 10	
Dyestuffs (otherwise under)	
Dieppe, 20 cks.	
Farina — Hamburg, 200 bgs.	
Glucose — Hamburg, 5 cks.	
Kainit — Hamburg, 250 bgs.	
Size — Rotterdam, 7 pkgs.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		Ammonium Carbonate—		Arsenic—		Caustic Soda—	
Week ending March 22nd.		Ottago, 1 ck.		Napier, 1 t. 8 c.		E. London, 56.	
Acids —		Dunkirk, 1 t.		Melbourne, 1		Montreal, 1 t. 13	
Singapore, 39 cs.	£82	Bordeaux, 10 pkgs.		Barilla —		Natal, 1	
Hong Kong, 20	60	Libau, 30		Oporto, 12 c.		Algoa Bay, 1	
Penang, 25	30	New York, 50		Bisulphide of Carbon —		Chemicals (otherwise under)	
Calcutta, 4 cks.	32	Auckland, 2 c.		Rotterdam, 5 t. 2 c.		Melbourne, 20 cs. 23 pkgs.	
Alkali —		Sydney, 10 cs.		Borax —		Dunedin, 3	
Sydney, 10 c.	£6	Ammonium Chloride —		Antwerp, 1 t.		E. London, 5	
Bombay, 10	5	Galatz, 15 c.		Sydney, 2		Cape Town, 5	
Alum Cake —		Cologne, 1 t. 2		Carbolic Acid —		Algoa Bay, 10	
Calcutta, 202 cks.	£141	Varna, 1 t. 11		Galatz, 1 t. 19 c.		Singapore, 10	
Ammonia (Liquid) —		Ammonium Sulphate —		Halifax, 4		Hamburg, 10	
Yokohama, 2 cs.	£8	Demerara, 36 t. 4 c.		Trepport, 80 cs. 13		Cologne, 1	
Ammonia Salts —		Berbice, 6		Rio de Janeiro, 1,040 pkgs.		B. Ayres, 50	
Yokohama, 2 t. 10 c.	£87	Rotterdam, 200		Baltimore, 7		Hio, 8 bgs.	
		Barbadoes, 15		Barcelona, 10		Auckland, 2 cks.	
		Ghent, 395		Philadelphia, 18		Boston, 22	
		Nevis, 12				Adelaide, 12 cs. 5	
		Antigua, 38					

d—	Nitric Acid—		Alum	Caustic Soda	
	11	12		11	12
11	12	13	14	15	16
12	13	14	15	16	17
13	14	15	16	17	18
14	15	16	17	18	19
15	16	17	18	19	20
16	17	18	19	20	21
17	18	19	20	21	22
18	19	20	21	22	23
19	20	21	22	23	24
20	21	22	23	24	25
21	22	23	24	25	26
22	23	24	25	26	27
23	24	25	26	27	28
24	25	26	27	28	29
25	26	27	28	29	30
26	27	28	29	30	31
27	28	29	30	31	32
28	29	30	31	32	33
29	30	31	32	33	34
30	31	32	33	34	35
31	32	33	34	35	36
32	33	34	35	36	37
33	34	35	36	37	38
34	35	36	37	38	39
35	36	37	38	39	40
36	37	38	39	40	41
37	38	39	40	41	42
38	39	40	41	42	43
39	40	41	42	43	44
40	41	42	43	44	45
41	42	43	44	45	46
42	43	44	45	46	47
43	44	45	46	47	48
44	45	46	47	48	49
45	46	47	48	49	50
46	47	48	49	50	51
47	48	49	50	51	52
48	49	50	51	52	53
49	50	51	52	53	54
50	51	52	53	54	55
51	52	53	54	55	56
52	53	54	55	56	57
53	54	55	56	57	58
54	55	56	57	58	59
55	56	57	58	59	60
56	57	58	59	60	61
57	58	59	60	61	62
58	59	60	61	62	63
59	60	61	62	63	64
60	61	62	63	64	65
61	62	63	64	65	66
62	63	64	65	66	67
63	64	65	66	67	68
64	65	66	67	68	69
65	66	67	68	69	70
66	67	68	69	70	71
67	68	69	70	71	72
68	69	70	71	72	73
69	70	71	72	73	74
70	71	72	73	74	75
71	72	73	74	75	76
72	73	74	75	76	77
73	74	75	76	77	78
74	75	76	77	78	79
75	76	77	78	79	80
76	77	78	79	80	81
77	78	79	80	81	82
78	79	80	81	82	83
79	80	81	82	83	84
80	81	82	83	84	85
81	82	83	84	85	86
82	83	84	85	86	87
83	84	85	86	87	88
84	85	86	87	88	89
85	86	87	88	89	90
86	87	88	89	90	91
87	88	89	90	91	92
88	89	90	91	92	93
89	90	91	92	93	94
90	91	92	93	94	95
91	92	93	94	95	96
92	93	94	95	96	97
93	94	95	96	97	98
94	95	96	97	98	99
95	96	97	98	99	100

Copperas—

Sydney,	3 t.	1 c.	1 q.	£6
Larnaca,	18	2		2
Galatz,	6	12	3	12
Bourgas,	4			9

Copper Sulphate—

Marseilles,	136 t.	17 c.	1 q.	£2,791
Havana,	5			4
Havre,	10	4	3	160
Tarragona,	5	19	1	88
Bordeaux,	28	1	1	440
Trieste,	10	2	1	140
Bari,	3	7	3	48
Fiume,	9	19	2	137
Leghorn,	7	9		107
Brindisi,	2	5		33
Valparaiso,	6			93
Calcutta,	5			79
Genoa,	7	17	2	114
Venice,	10	15		156
Ancona,	5			73
Rouen,	39	14		635
Odessa,	5			75

Disinfectants—

Lagos,		3 q.		£5
Colon,		7 c.		8
Bombay,	3 t.	2		84
Barcelona,		10		7
New York,				25

Flowers of Sulphur—

Lisbon,	6 t.	3 q.		£49
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French Chalk—

Philadelphia,	10 bgs.			
Bombay,	10			

Glucose—

New York,	4 dms.			
Capetown,	80 cks.			

Guano—

Valencia,	125 t.	1 c.		£319
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Gypsum—

New York,	65 t.	13 c.		£218
Victoria, B.C.,	5	10	2 q.	15

Iron Oxide—

Santander,	3 t.	7 c.		£18
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Lead Acetate—

Malta,	12 c.	1 q.		£16
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Litharge—

Oporto,	4 cks.			
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Magnesium—

Bombay,	4 t.	15 c.	2 q.	£15
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Manganese—

Bordeaux,	4 cks.			
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Manure—

Havre,	300 t.	5 c.		£980
Rocheport,	504	1	3 q.	1,613
Bordeaux,	350	6	3	1,109
Genoa,	84	11	1	295
St. Malo,	300	5	3	1,187
Valencia,	74	2		480
Antwerp,	66	8	3	288

Metallic Sodium—

Rotterdam,	2 t.	8 c.		£450
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Nitric Acid—

Talital,	2 c.	1 q.		£7
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Ochre—

Kingston, Jam.,	10 cks.			
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Paint—

Amsterdam,		6 kgs.	6 dms.	
Barbadoes,	2 cks.			
Benguella,	150			20
Cadix,				
Calcutta,		12		
Callao,	95 cs.			
Cardenas,	2			
Cartagena, N.G.,	3			
Cavite,			35	
Genoa,			150	
Humacao,			30	
Mayaguez,	10			
Odessa,	50			
Sierra Leone,	3	189		
Alexandria, 10 brls.		320		
Assinee,	20			
Bayin,	25			
Bombay, 30 cs.				
Candia,	3			
Cape Haiti,	4			
Colon, 10 cs.				
Gr. Bassam,			10	
Jeremie,	2			
Lagos,	1	40		
Opobo,	4		20	

Philadelphia, 1 cs.

Port Natal,	7	150		
Puerto Plata,	0			
Rangoon,		9		
Rio Grande,		10		
Rio de Janeiro,			100	
Trieste,			52	
Yokohama,			89	

Painters' Colours—

Dunkirk, 3 bxs.				
Gothenburg,				
Hamburg, 10 cs. 14 brls.	9 kgs.	35 bgs.		
Manaos,	5		4 cks.	
Philadelphia,			200	
Ponce,				
Buenos, 16 cs. 13	35	5		
Calcutta, 30				
Capetown,				
Ceara,				
E. London, 100	20			
Honda,	5			
Montreal, 15 pkgs.			1	
Nassau,			10	
Pernambuco, 25 dms.				
Rouen,				4
Santa Catharina, 1 brl.	38			
Santander, 10 brls.				
Savanna,			6 bgs.	
Talcahuano, 13				
Vera Cruz, 3 cs.				

Paraffin Wax—

Odessa, 140 bgs.				
Algiers, 3 cs.				
Antwerp, 4				
Bombay, 10				

Phosphate—

Capetown, 4 t.		£10		
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Phosphorus—

Vera Cruz, 5 cs.		£88		
Shanghai, 30		300		
Hio, 40		515		
Hong Kong, 2		25		

Plumbago—

Valencia, 1 ck.				
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Potassium Bichromate—

Bilbao, 4 c.		£9		
Vera Cruz, 1 t. 17		79		
Maranham, 9	1 q.	40		

Potassium Chlorate—

Oporto, 5 c.		£13		
Boston, 7 t. 10		301		
Odessa, 1		56		
Philadelphia, 7	10	390		
Fairwater, 1	10	82		
B. Ayres, 6		25		
Valencia, 1		56		
Antwerp, 2	14	176		
Copenhagen, 5		336		
New York, 10		31		
Hio, 17	10	1,054		

Salt—

Algoa Bay, 27 t. 17 c.				
Anatto Bay, 5				
Axim, 6	5			
Benin, 46	3			
Bonny, 50				
Boston, 100				
Buguma, 20				
Calcutta, 2,620				
C. C. Castle, 12	10			
Capetown, 60				
Chicago, 65				
Conakry, 50				
Coquimbo, 250				
Fernando Po., 4	10			
Fremantle, 10				
Ghent, 275				
Gr. Bassam, 54				
Halifax, 9				
Kansas City, 130				
Lagos, 200	14			
New York, 87	10			
Old Calabar, 155				
Opobo, 275				
Port Natal, 35				
Rio de Janeiro, 75 cs.				
San Francisco, 333	14			
Sette Camme, 10				
Sierra Leone, 200				
Trinidad, 17	17			
Valparaiso, 109	12			
Accra, 6½				
Adelaide, 50				
Akassa, 400				
Amsterdam, 130				
Antwerp, 20				
Melbourne, 40				
Rotterdam, 61				
Warre, 8	18			
Yarmouth, N.S., 20				

Salt Cake—

Pittsburg, 125 t. 11 c.		£299		
Baltimore, 100	8	236		

Saltpetre—

Natal, 1 t. 1 c.		£31		
Rio de Janeiro, 2	2 q.	48		
Havana, 10		11		
Alexandria, 10		11		
Vera Cruz, 6	7	135		
Ceara, 6		7		
Pernambuco, 10	17	956		
Para, 2	15	63		

Sheep Dip—

Durban, 1 t. 13 c.	2 q.	£24		
New York, 2		8		
Punta Arenas, 6	7	190		

Slze—

Bombay, 4 dms.				
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Soap—

Algoa Bay, 1,862 bxs. 125 cs. 5 bds.				
Barbadoes, 400		25		
Bermuda, 50				
Brussels, 450				
Cameroon, 40				
Capetown, 700				
Christiansted, 50				
E. London, 50	10			
Fredrickstad, 700				
Malta, 24				
Mauritius, 2,025				
Mayaguez, 1				
New York, 300	57			
Port Antonio, 50				
Elizabeth, 10				
Natal, 580				
Rotterdam, 100				
Rouen, 35 brls.	37			
St. Anne's Bay, 40				
Shanghai, 4,453				
Teneriffe, 200				
Vera Cruz, 2				
Accra, 100				
Amsterdam, 1,875				
Antwerp, 7				
Assinee, 25				
Benin, 200				
Bonny, 700				
Calcutta, 250				
C. C. Castle, 50				
Carthage, S.A., 1				
Colon, 50				
Conakry, 40				
Curacao, 150				
Gibraltar, 300				
Havre, 1				
Lagos, 230				
Lima, 10				
Lisbon, 10				
Luca, 42				
New Orleans, 350				
Old Calabar, 800				
Opobo, 2,480				
St. John's, Nfld., 220				
San Juan, 400				
Sierra Leone, 10				
Singapore, 762				
Trinidad, 250				
Warre, 250				

Soda Alkali—

Lisbon, 70 brls.				
Messina, 49				
E. London, 11				
Sydney, 30				

Soda Ash—

Baltimore, 468 cks. 135 brls. 1,107 bgs.				
Boston, 641 cks.		2,560		
Calcutta, 34				
Callao, 32 cs.				
Canea, 30				
East St. Louis, 129				
Kingsey, 80				
La Guayra, 5				
Madeira, 20				
Melbourne, 80				
M. Video, 77				
Oporto, 18				
Port Colborne, 40				
Rio de Janeiro, 100	50			
Smyrna, 100	110			
Sydney, 20				
Amsterdam, 140				
Antwerp, 80				
Bahia, 30				
Campos, 27				
Dunedin, 43				
Fremantle, 31				
Genoa, 24				
Lisbon, 10				
Montreal, 10				
New York, 840	57	4,856		
Philadelphia, 332		667		
Pirzeus, 5				

Prevesa, 6				
Victoria, B.C., 13				
Wellington, 21				
Yokohama, 75				

Soda Crystals—

Boston, 387 brls.				
Halifax, 27	50 kgs.			
Malta, 50 cks.	50			
New York, 140				
Philadelphia, 780				

phosphate—	
55 t. 10 c. 1 q.	£131
1 ckt. 4 brls.	
2 cks.	
24	
6	
3	
6 bgs.	
3 cs.	
3	
2	
1	
8	
1	

ad—	
10 cs.	
ride—	
9 t. 10 c.	£52
9 15 2 q.	96

hate—	
46 brls.	
te—	
40 cks.	

GLASGOW.

ending March 23rd.

um Sulphate—	
10 t. 5 c.	£125
102 7½	1,095
101 15½	1,092

us Ammonia—	
12 c.	£44. 15s.

g Powder—	
35 t. 1½ c.	£313

Acid—	
5 t. 7 c.	£105

oda—	
5 t. 2½ c.	£50
50 4½	405

s (otherwise undescribed)	
	£20

ours—	
	£20

of Lime—	
9 t. 18 c.	£79

m—	
	£43

ducts—	
10 puns.	£75
qty.	

te Oil	
70 t. 2 c.	£345
383 12	770

ha	
150 brls.	

gen	
54 t. 2 c.	£70
300	£32. 10s.

de—	
1 t. 3 c.	£33

Oil—	
Me. 12 t. 18½ c.	£273
2 2½	42
2 18½	60
2 8½	48
1	26

Extract—	
1 t. 8½ c.	£68
	55

se—	
10 t. 1 c.	£94

k,	
19 t. 14 c.	£175

Paint—	
Natal,	£73
Shanghai, 3 t.	240
Japan,	19. 18s.
Calcutta,	306
New York, 1 t. 2¼ c.	26

Painters' Colours—	
Cape Colony,	£103
Adelaide,	100
Colombo,	53
Calcutta,	71

Paraffin Wax—	
Odessa, 4 t. 6½ c.	£88
Barcelona, 8 1	201
Italy, 10 2¼	274

Potassium Bichromate—	
Bordeaux, 4 t. 12¼ c.	£182
Rotterdam, 38 cks.	532
Barcelona, 10 t. 8¾ c.	432
Halifax, 3 13¼	145

Potassium Sulphate—	
New York, 21 t. 14¾ c.	£214

Rosin—	
Colombo, 9 t. 13 c.	£33

Rosin Oil—	
Rotterdam, 25 brls.	£46

Salt Cake—	
Baltimore, 199 t. 8½ c.	£399

Soap—	
Cape Colony, 2 t. 11 c.	£38
Rotterdam, 1¼	2

Sodium Bichromate—	
Bordeaux, 12½ c.	£20
Halifax, 3 t. 13¼	120

Sulphuric Acid—	
Colombo, 6 t. 1 c.	£30. 17s.
Madras, 17 11¼	£175

Sulphuric Ether—	
Sydney, 30 glns.	£4
Brisbane, 15	2
Melbourne, 7	1

Varnish—	
Rotterdam, 4 brls.	£6

White Lead—	
Calcutta, 2 t. 10 c.	£30
Brisbane, 2	50

HULL.

Week ending March 18th.

Alkali—	
Bremen, 20 kgs.	
Boston, 92 cks.	

Ammonium Sulphate—	
Dunkirk, 800 bgs.	

Antimony—	
New York, 100 cks.	

Benzol—	
Flushing, 13 dms.	
Rotterdam, 48 cks.	

Bleaching Powder—	
Bremen, 5 cks.	
Boston, 69	
Copenhagen, 2	

Caustic Soda—	
Danzig, 35 dms.	
New York, 300	

Chemicals (otherwise undescribed)	
Antwerp, 6s. 4 cks.	
Copenhagen, 12 195 pks.	
Danzig, 1 cs. 2 pkgs. 80 kgs.	
Gothenburg, 26 29 cks. 50 pkgs.	
Hamburg, 2 26 22	
Harlingen, 15	
Konigsberg, 10 pks. 5 cs.	
New York, 200 10 142 cks.	
Reval, 1 ckt. 80 pkgs.	
Rotterdam, 101 cks.	
Stettin, 172 cs. 11 cks. 28 pkgs.	

Copper Sulphate—	
Danzig, 20 cks.	

Cottonseed Oil—	
Antwerp, 689 c.	
Bremen, 50	
Flushing, 199	
Gothenburg, 150	
Hamburg, 815	
Konigsberg, 14	
Rotterdam, 2,705	
Stettin, 20	

Creosote—	
Hamburg, 10 cks.	
Reval, 56 bls.	

Dyestuffs (otherwise undescribed)	
Danzig, 3 cs. 6 bls.	
Hamburg, 1 1 ckt.	
Reval, 2 18 cks.	
Stettin, 2	

Linseed Oil—	
Antwerp, 28 c.	
Bremen, 61	
Copenhagen, 68	
Hamburg, 587	
Melbourne, 650	
New York, 215	
Rotterdam, 42	
Sydney, 272	

Mineral White—	
Antwerp, 50 bgs.	
Flushing, 10 t.	

Painters' Colours—	
Antwerp, 2 cs. 59 cks.	
Bremen, 1	
Boston, 115 pks.	
Copenhagen, 2 23 4 dms. 11 pkgs.	
Danzig, 1	
Gothenburg, 25 1	
Hamburg, 180 41	
Harlingen, 21 39 55 128 kgs.	
Melbourne, 21 39 55 128 kgs.	
Newcastle, N.S.W., 80	
New York, 191	
Reval, 4 cs.	
Rouen, 3	
Rotterdam, 1 8 1 pkge.	
Sydney, 88 380 kgs. 120 dms.	

Paraffin Wax—	
Reval, 450 bls.	

Pitch—	
Antwerp, 200 t.	
Copenhagen, 30	
Danzig, 25	
Dunkirk, 225	

Size—	
Bremen, 20 cks.	
Flushing, 10	
Harlingen, 1 bl.	

Tallow—	
Flushing, 10 cks.	

Tar—	
Antwerp, 7 cks.	
Amsterdam, 90	
Copenhagen, 20	
Hamburg, 12	

Varnish—	
Antwerp, 3 cs. 2 dms.	
Copenhagen, 3 1 ckt.	
Gothenburg, 4 cks.	
Rotterdam, 9	

TYNE.

Week ending March 18th.

Alkali—	
Hamburg, 1 t. 3c.	
Genoa, 10 14	
Rotterdam, 4 13	
Savona, 42 12	

Ammonium Chloride—	
Constantinople, 2 t. 2 c.	

Ammonium Sulphate—	
Ghent, 30 t.	

Antimony—	
Rotterdam, 11 t.	
Savona, 1 4 c.	

Anthracene—	
Rotterdam, 29 t. 10 c.	

Arsenic—	
Savona, 3 c.	
Genoa, 18	

Barium Binocide—	
Rouen, 11 t. 3 c.	

Barium Chloride—	
Rouen, 5 t. 2 c.	

Barium Hydrate—	
Ancona, 50 t. 2 c.	

Barytes—	
Hamburg, 180 t.	
Cologne, 160	

Bleaching Powder—	
Hamburg, 75 t. 19 c.	
Ghent, 11 4	
Antwerp, 93	
Rouen, 10 4	
Rotterdam, 7 12	
Copenhagen, 2 7	
Gothenburg, 40 3	
Genoa, 11 1	
Drontheim, 10 1	

Borax—	
Seville, 2 t. 4 c.	

Caustic Soda—	
Hamburg, 1 t. 1 c.	
Genoa, 31 16	
Copenhagen, 7 9	
Odessa, 56 12	

Colours—	
Rotterdam, 2	

Copperas—	
Rotterdam, 3 t. 8 c.	

Litharge—	
Oporto, 1 t. 19 c.	

Magnesia—	
Hamburg, 18 c.	
Genoa, 1 t. 8½	

Paint—	
Copenhagen, 1 t. 3 c.	

Soda—	
Hamburg, 4 t. 17 c.	
Genoa, 30 8	
Ghent, 5	
Rotterdam, 47 10	
Constantinople, 10 4	

Soda Ash—	
Ancona, 11 t. 12 c.	
Copenhagen, 19 16	
Odessa, 10 7	
Gothenburg, 18 8	

Sodium Nitrate—	
Gothenburg, 19 c.	

Sodium Silicate—	
Bilboa, 16 t. 15 c.	

Sulphate of Lime—	
Genoa, 2 t. 6 c.	

Sulphur—	
Ghent, 5 t.	
Drontheim, 50	

Superphosphate—	
Hamburg, 130 t. 1 c.	
Genoa, 200 1	
Rouen, 9 16	

Tallow—	
Hamburg, 1 t. 16 c.	

White Lead—	
Copenhagen, 2 t. 2 c.	
Oporto, 4 20	
Odessa, 15 18	
Gothenburg, 2 15	

GOOLE.

Week ending March 8th.

Benzol—	
Ghent, 35 dms.	
Hamburg, 8 25 cks.	
Rotterdam, 120	

Chemicals (otherwise undescribed)	
Ghent, 30 cks.	
Rotterdam, 181	

Creosote—	
Oporto, 1,000 cks.	

Dyestuffs (otherwise undescribed)	
Hamburg, 6 cks.	

Manure—	
Boulogne, 122 bgs.	
Bruges, 280	
Ghent, 1,633	
Hamburg, 200 2 cks.	
Ostend, 30 t.	

Pitch—	
Dunkirk, 82 t.	
Antwerp, 402	

GRIMSBY.

Week ending March 11th.

Chemicals (otherwise undescribed)	
Dieppe, 70 cks.	
Hamburg, 3cs. 7	

Coal Products (otherwise undescribed)	
Dieppe, 84 cks.	

Dyestuffs (otherwise undescribed)	
Dieppe, 11 cks.	

PRICES CURRENT.

WEDNESDAY, MARCH 22ND, 1901.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt	7/-	& 11/-
Glacial	"	50/-	
Arsenic S.G., 2000°	"	0 14	6
Fluoric	per lb.	0 0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0	10
" (Cylinder), 30° Tw.	"	0 3	0
Nitric 80° Tw.	per lb.	0 0	1 3/4
Nitrous	"	0 0	1 3/4
Oxalic	nett	0 0	3
Phosphoric, 1750°	"	0 1	2 1/2
Picric	"	0 1	0
Sulphuric (fuming 50%	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" " 150°	"	1	5 0
" (free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0 1	2
Tartaric	"	0 0	11 1/2
Arsenic, white powdered	nett per ton	13	10 0
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferrous	"	2	10 0
Aluminium	per lb.	0 4	0
Ammonia, Anhydrous	"	0 1	1
" 880=28°	per lb.	0 0	2 1/2
" =24°	"	0 0	1 3/4
" Carbonate	nett	0 0	3 3/4
" Muriate	per ton	20	0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
" Nitrate	per ton	39	0 0
" Phosphate	per lb.	0 0	10 1/2
" Sulphate (grey) London	per ton	12	15 0
" " (grey) Hull	"	12	16 3
Aniline Oil (pure)	per lb.	0 0	7
Aniline Salt	"	0 0	6 1/2
Antimony	per ton	45	10 0
" (tartar emetic)	per lb.	0 1	0
" (golden sulphide)	"	0 0	10
Barium Chloride	per ton	7	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35%	nett	8	0 0
" Liquor, 7%	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0 0	6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	nett per lb.	0 0	8
Magenta	"	0 3	9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0 1	2
Benzol, 90% nominal	per gallon	0 1	8
" 50/90	"	0 1	6
Carbolic Acid (crystallised 40°)	per lb.	0 0	7 1/2
" (crude 60°)	per gallon	0 2	5
Creosote (ordinary)	"	0 0	1
" (filtered for Lucigen light)	"	0 0	1 1/4
Crude Naphtha 30% @ 120° C.	"	0 0	10
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	"	1	6 0
Solvent Naphtha, 90% at 160°	per gallon	0 1	1
" Lucigen" and "Wells" Oils	"	0 0	1 1/4
Copper	per ton	45	6 3
" Sulphate	"	16	5 0
" Oxide (copper scales)	"	42	0 0
Glycerine (crude)	"	13	0 0
" (distilled S.G. 1250°)	"	43	0 0
Iodine	nett, per oz.	0 0	9
Iron Sulphate (copperas)	per ton	1	12 6
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	11	5 0
" Litharge Flake (ex ship)	"	13	10 0
" Acetate (white ")	"	25	15 0
" " brown ")	"	17	10 0
" Carbonate (white lead) pure	"	20	0 0
" Nitrate	"	20	0 0

Lime, Acetate (brown)	per ton	6
" (grey)	"	10 1/2
Magnesium (ribbon and wire)	per oz.	0
" Chloride (ex ship)	per ton	2
" Carbonate	per cwt.	1 1/2
" Hydrate	per ton	17
" Sulphate (Epsom Salts)	per ton	2 1/2
Manganese, Sulphate	"	17 1/2
" Borate	per cwt.	2 1/2
" Ore, 70%	per ton	4
Methylated Spirit, 61° O.P.	per gallon	0
Naphtha (Wood), Solvent	"	0
" Miscible, 60° O.P.	"	0

Oils:—

Cotton-seed	per ton	24 1/2
Linseed	"	21 1/2
Lubricating, Scotch, 890°—895°	"	7
Petroleum, Russian	per gallon	0
" American	"	0
Potassium (metal)	per oz.	0
" Bichromate	nett per lb.	0
" Carbonate, 90% (ex ship)	per ton	17
" Chlorate	per lb.	0
" Cyanide, 98%	"	0
" Hydrate (Caustic Potash) 80/85%	per ton	21 1/2
" " (Caustic Potash) 75/80%	"	20
" " (Caustic Potash) 70/75%	"	20
" Nitrate (refined)	per cwt.	1
" Permanganate	per cwt.	3
" Prussiate Yellow	per lb.	0
" Sulphate, 90% (ex ship)	per ton	9
" Muriate, 80% (do.)	"	8
Silver (metal)	per oz.	0
" Nitrate	"	0
Sodium (metal)	per lb.	0
" Carb. (refined Soda-ash) 48%	nett per ton	6
" " (Caustic Soda-ash) 48%	"	4
" " (Carb. Soda-ash) 48%	"	4
" " (Carb. Soda-ash) 58%	"	5
" " (Soda Crystals)	"	1
" Acetate (ex-ship)	"	17
" Arseniate, 45%	"	11
" Chlorate	per lb.	0
" Borate (Borax)	net, per ton	28
" Bichromate	per lb.	0
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	10	
" " (74% Caustic Soda)	10 1/2	
" " (70% Caustic Soda)	9 1/2	
" " (60% Caustic Soda)	8 1/2	
" " (60% Caustic Soda, cream) (f.o.b.)	8	
" Bicarbonate	"	6 1/2
" Hyposulphite	"	7 1/2
" Manganate, 30%	"	16 1/2
" Nitrate (95%) ex-ship Liverpool	per cwt.	0 1/2
" Nitrite, 98%	per ton	27 1/2
" Phosphate	"	15 1/2
" Prussiate	per lb.	0
" Silicate (glass)	per ton	5 1/2
" " (liquid, 100° Tw.)	"	4 1/2
" Stannate, 40%	per cwt.	3 1/2
" Sulphate (Salt-cake)	per ton	1 1/2
" " (Glauber's Salts)	"	1 1/2
" Sulphide	"	8 1/2
" Sulphite	"	6 1/2
Strontium Hydrate, 100%	"	3 1/2
Sulphocyanide Ammonium, 95%	per lb.	0 1/2
" Barium, 95%	"	0 1/2
" Potassium	"	0 1/2
Sulphur (Flowers)	per ton	8 1/2
" (Roll Brimstone)	"	6 1/2
" Brimstone: Best Quality	"	4 1/2
Superphosphate of Lime (26%)	"	2 1/2
Tallow	"	34 1/2
Tin (English Ingots)	"	97 1/2
" Crystals	per lb.	0
Zinc (Spelter)	per ton	17 1/2
" Chloride (solution, 96° Tw.)	"	5 1/2

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Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited, and should be condensed their matter as much as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent in separate sheets.

Contributors are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

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WHO PAYS THE PIPER?

IT has been said that what Lancashire says to-day London does to-morrow, and doubtless it is quite in keeping with the adage for the ancient Borough of Salford to take upon itself the task of pioneering the sewage question.

There are many Corporations all over the country which are waiting to benefit by the experience which Salford is purchasing, but in the meantime the ratepaying portion of this Borough seem to think they are buying their experience in a rather costly fashion. For three years the Corporation has been making special experiments to determine what is the best process for treating sewage, and in so doing some £45,000. has been spent. Each year the expenditure has increased, and this time the cost has been estimated at £21,205. Experimenting with processes for the treatment of sewage is necessarily an expensive matter, and it would be a very short-sighted policy to hamper the River Conservancy Committee for want of money for chemicals. This is the item, however, which is generally attacked, and pared down to the finest possible limit.

The most unfortunate part of the matter is that in some quarters there appears to be an idea that these experiments (though costly) will bring to light some process, by means of which sewage may in future be treated for next to nothing. Of all unlikely things this is about the most unlikely, for the experience of the past three years has been directly opposed to such an idea. The most satisfactory process will, it has been calculated, cost the Borough £25,000. per annum to treat their sewage.

This is anything but encouraging to those Corporations who are waiting for Salford to loose the Gordian knot; and the item of £4,000. for chemicals, which appears in this year's estimate is reasonable compared with it, since treatment with lime alone costs £2,000.

The Committee have experimented with fifteen processes, but of these only six were of any use. This is not a bad record of work, but how much nearer to finality the question has been brought it would be very hard to say.

It was pointed out by Mr. Robinson when the Council were discussing the estimate, that one advantage of delay was that the Committee had been enabled to get a reduction of one half in the amount which was asked for one of the most satisfactory systems. If this be so it seems a pity that delay, pure and simple, has not been adopted instead of a united scheme of delay and outlay.

A point which must be carefully borne in mind is, that in any case the cost of treating the sewage of a Borough like Salford will be heavy, and when it is stated that a scheme is being considered for carrying the sludge from the sewage out to open sea in vessels specially built for the purpose, increased expenses must be looked for.

So far, the chief cause of anxiety on the part of those who do not look favourably upon the work of the Committee

is on the ground that Salford is spending money to benefit not only herself but all the country, but we should rather think that there was cause for still greater anxiety on the ground that, treat their sewage Salford will have to before long, and as yet there is but little prospect of getting the sewage treated in such a manner as to give a consistently good effluent and an innocuous sludge; for the Committee have not yet decided which is the best method of treating the sewage, though they have reduced the number of processes to be considered from fifteen to six. Under these conditions it is not very reassuring to hear so much being said about cost when shortly the sewage will have to be treated at any price. The great thing is to give the Committee a free hand, but to insist on something definite being done as speedily as possible, so that the Corporation may be in a position to begin purifying their sewage when called upon to do so, when no doubt those who have found the money for these experiments, will not begrudge it, though it will not have cost them a trifle by the time the end is reached.

THE NITRATE MARKET IN 1892.

MONS. MAZIERES, writing of the nitrate of soda market in *L'Engrais*, says:—The most striking feature of the market of 1892 was the sudden fall of prices at the time of greatest consumption, just at the commencement of April. The holders of stocks had kept prices very firm up to this period, relying upon statistics, which were certainly in favour of sellers; unfortunately for them, however, a return of cold weather in February enabled consumers to postpone their purchases for five weeks and thus strengthen their resistance to the rise of prices. This relaxation of demand just at the time when many of the speculators hoped to close their transactions led to a veritable collapse of the market at the end of the spring season. This fall was marked both in France and abroad by the failure of important business houses, which had too confidently discounted a rise indicated by statistics, but prevented by the obstinate resistance of consumers, aided just at the right moment by the appearance of a second winter. These facts show that the most careful forecasts are liable to be disconcerted by unforeseen events which may entirely change the situation.

Nitrate, as we have always maintained, is a very dangerous article for speculation, because its market is not localised in one country, but embraces the whole world. It has only a single source, Chili, to supply the needs of the cultivation of the whole of America and Europe, and it is hence necessary to obtain information as to the movement of prices not only in one country, but in all the great markets of Europe, such as Belgium, England, and Germany, for the fluctuations of these will affect the price in France just as the movement of our own market affects those of the other countries.

We do not think that a repetition of the events of the preceding year is at all probable for 1893. First of all, the diminution of exportation from Chili, due to the tactics of the producers, has rendered the statistical position, already unfavourable to holders in 1892, still more so for the present year. If the consumption for the first four months of 1893 reaches the same level as in 1891 and 1892, not only may all the present stocks be absorbed, but we may even find ourselves face to face with a deficit.

It cannot be disguised that the present position of holders is, however, a very strong one, the more so as prices have remained at average limits very favourable to cultivation. There remains the contingency of consumption, which is of serious importance, and may upset the best-founded calculations. It seems to us proved that general consumption stops suddenly in its periodic increase, and that it has arrived at its apogee.

An examination of the greatly reduced exports of 1891 and 1892, however, reveals the fact that the tactics of the producers, which consist in limiting their exports by the demand, will result in exhausting all the stocks in Europe.

A slight slackening in consumption is certainly perceptible in the figures of the past two years. Whether the number of 1892 will be maintained or not is, however, a question which cannot easily be answered. It is, therefore, more prudent to rely on the average number of the preceding four years, which is 763,000 tons for Europe, and 857,000 tons for the whole world.

These amounts exceed the quantities exported from Chili during the same time; and the diminution of the old stocks in Europe is therefore almost certain. Under these conditions, how can we expect a con-

siderable fall? It may of course occur, but does not seem indicated by the probabilities of the situation. Whilst some purchasers, then, not to lay in too large stocks, we cannot advise them against selling out their stocks in the hope of a rise, which none of the indications of the moment point.

This is so obvious that not a single speculator will be likely to venture at present to sell in the hope of a fall.

Although the nitrate market should not be examined in any district alone, let us examine those aspects of it which are of importance for France.

Dunkirk, as is known, receives nine-tenths of the nitrate of soda. The following are the stocks existing in this port on 31st Dec.

1888.	1889.	1890.	1891.	1892.
25,000	56,000	60,000	57,000	72,000

This spring the stocks are larger, but it must not be forgotten that on 31st December, 1892, the floating cargoes only amounted to 10,000 tons, whilst at the same date in the foregoing year, they were 20,000 tons. The arrivals at Dunkirk during the first four months of 1892, therefore, be much less than in the preceding year, because the cargoes comprise consignments for all markets. In 1891, the arrivals at Dunkirk, we may estimate the remaining stocks at 10,000 tons. The following are the importations into France the last four years:—

Importation of Nitrate of Soda into France.

1889.	1890.	1891.	1892.
177,624	216,307	180,232	193,000

Consumption in France.

1889.	1890.	1891.	1892.
146,000	200,000	193,000	178,000

The consumption in France, like that of the whole world, has decreased, and it will be necessary to take account of this fact on the horizon.

In Belgium the situation, according to the *Precurseur*, is as follows:

Stock at Antwerp, 31st Dec. 1891	22,000 tons
Arrivals during the year 1892	70,000

92,000

Actual stock, about..... 33,500

Total supplied through Antwerp

Delivered by Ghent and Ostend

Total for Belgium

In the year 1891 Antwerp delivered 57,000, against 58,500 in 1892, so that there has been an increase of 1,500 tons.

The total deliveries by these three ports in 1891 was 94,000 tons, whilst in 1892 it was 94,500 tons, an increase of 500 tons.

THE CYANOGEN COMPOUNDS IN SPENT OXIDE.

THE conditions of the formation of prussian blue in the presence of coal gas form a problem of great interest, the more so as this product can be obtained almost for nothing, and may be sold at a considerable profit. Writing on this subject in the *Zeitschrift für Chemie* Dr. Burschell says:—"Although no satisfactory explanation of the formation has yet been proposed, it follows, from the experiments of Leybold, that the blue is produced in the material used for the purification of coal gas during its revivification, the cyanide of iron contained in the gas being converted by oxidation into prussian blue."

Whether the compound formed by the absorption of the cyanogen is ferrous cyanide, or ferrous ferrocyanide, corresponding to the ferrocyanide, is difficult to ascertain, owing to the instability of these substances; it may, however, be taken as certain that the compound is formed in the first purifiers, since it cannot exist in the gas after the excess of sulphuretted hydrogen which is contained in it has once undergone reduction. It may also be considered as certain that the absorption in the purifiers takes place by double decomposition of the hydrocyanic acid or ammonium cyanide with iron oxide, the proof of this lies in the fact that fresh oxide has only a very weak power of absorbing cyanogen; old oxide, on the other hand, has a powerful power of taking up cyanogen, even after it has lost its power of absorbing sulphuretted hydrogen gas. An unpleasant and unprofitable by-product of spent oxide is frequently sulphocyanide of ammonium, which not only adds to the value of the by-product, and often renders it of considerable valueless.

The cause of the formation of this substance was rightly pointed out by the presence of ammonia in the purifier, and this was experimentally proved by Leybold. It must not be supposed that cyanogen can be absorbed as well in the presence of ammonia as in the

carried out in a gas works, where the gas was insufficiently washed that after the purifiers only very small amounts of cyanide were present in the gas, the actual quantity contained being 1.5 c.c. of hydrocyanic acid per 100 cubic metres, whilst Leybold gives 1.5 grms. as a minimum amount; the absorption was therefore considered a good one.

A series of experiments showed that on the small scale the effect of the presence of ammonia, is able to yield a considerable amount of prussian blue—up to 7%—in addition to much cyanide.

It appeared necessary to investigate the relation between sulphocyanide, in order to explain the difference between results on the small scale, and those obtained in a works.

It teaches us many reactions between ferrocyanide and sulphocyanide: each can be converted into the other, but it is noteworthy that it is much more easy to convert ferrocyanide into sulphocyanide than to bring about the reverse change. As early as 1808 Berzelius prepared potassium sulphocyanide, which gives a red coloration with iron salts, by boiling prussian blue with potassium sulphide, and separating it from it by distillation with acids the free sulphocyanide which he called sulphuretted chyzic acid.

Sulphocyanide can be prepared from yellow prussiate of potassium by sulphur or by boiling with monosulphide of potassium. The reaction of the metallic sulphocyanides from the cyanides by the action of sulphur is also well known. Thus potassium cyanide fuses on fusion, or on treating the aqueous solution with the acid, and ammonium sulphocyanide is really formed from potassium cyanide and the polysulphides of ammonium.

At works where the washing of the gas is insufficient, therefore, the conditions for the production of sulphocyanides are always unfavorable; an excess of sulphuretted hydrogen is lost with ammonia and hydrocyanic acid. The first two acts of polysulphide of ammonium upon the hydrocyanic acid, or upon the ammonium cyanide, with formation of sulphocyanide.

As to this first formation of sulphocyanide in the purifiers, it is always to be possible outside of them during the revivification of the gas arrives at the purifiers still laden with ammonia, the ammonia is taken up by the oxide by means of its moisture and the water absorption of the sulphuretted hydrogen, and is again driven off as evolved during the regeneration. This heat may be the reaction between the iron cyanide present or the prussian blue to form sulphocyanide, since the ammonia in presence of sulphuretted hydrogen with which the mass is saturated, must be able to act as ammonium sulphide.

Therefore so, it would provide an explanation for the difference between the results of small scale experiments and those obtained in a works, since the heat produced with a small quantity would be more than that given by the contents of an entire purifier. The amount of blue present in masses which were regenerated without heating or which had soon lost their ammonia must be larger than in such as became strongly heated during the process, and at the same time contained ammonia.

Experiments on this point could easily be arranged in a works, since the action of the ammonia by immediate sifting and ventilating of the masses appears to be feasible, and a considerable rise of temperature is obtained against by taking out small quantities and keeping them in water. Arrangements were therefore made by which the mass was separated from the saturated masses coming from the purifier, if necessary, was cooled in this manner. After the amount of blue was determined in both portions.

Estimations of the moisture present were also necessary, and, in small differences expected, great care had to be exercised in the taking of a true average sample, moreover, the determination can only be done by an accurate and reliable method. The process to adopt, seemed to be that described by Drehschmidt, this has not yet been proved to give accurate results in the case of large amounts of sulphocyanide. In order to meet this, therefore, a combination of Drehschmidt's method and Knublauch was adopted, i.e., to extract the blue by means of water and purify by re-precipitation and washing.

Grammes of the air-dried, very finely powdered and well-mixed were moistened with water in a small glass beaker, and 20 c.c. of caustic potash solution of 1.2 sp. gr., the contents were well mixed by stirring with a glass rod. After standing several hours, the contents of the beaker were washed with water in a 100 c.c. flask, well shaken up, 100 c.c. filtered off and warm sulphuric acid to which a little solution of iron alum was previously added. The precipitated blue, collected on a filter, washed once or twice (which corresponded to 8 grammes of mass), was brought into water along with the filter paper, and examined by the method of Drehschmidt. Two analyses were made, and the final numbers expressing the amount of ammonium sulphocyanide solution used, frequently

agreed exactly, the difference being only in a few cases higher than 1% c.c. The results of these analyses are given in the following table.

TABLE I.

No. Sample.	c. c. of $\frac{1}{10}$ N. Ammonium Sulphocyanide used.			% Blue $\text{Fe}_4\text{CN}_{12}$
	a.	b.	Mean.	
1	9.4	9.6	9.5	4.532
2	10.5	10.7	10.6	5.057
3	10.3	10.4	10.35	4.938
4	12.8	12.8	12.8	6.107
5	6.1	5.9	6.0	2.863
6	8.5	8.6	8.55	4.079
7	7.4	7.3	7.35	3.507
8	7.5	7.5	7.5	3.578
9	11.4	11.3	11.35	5.415
10	11.6	11.6	11.6	5.534
11	5.6	5.6	5.6	2.672
12	6.0	6.1	6.05	2.886
13	10.0	10.1	10.05	4.795
14	11.4	11.3	11.35	5.415
15	5.9	6.05	5.975	2.851
16	7.3	7.3	7.3	3.483

The excellent agreement of the numbers may be taken as a certain proof of the reliability of the method adopted. It should be mentioned that with the exception of masses 1 and 2 all the analyses which were actually made are included in the table. Two or three preliminary experiments were made with masses 1 and 2.

For purposes of comparison the percentages of blue found were reduced to the dry substance. The moisture was determined by drying the samples in a desiccator until their weight became constant, this method being preferred to drying them at a higher temperature. The weight of substance employed was 5 grms.

TABLE II.

No. of Sample.	% Moisture			% Dry subst. in air dry		% Blue.	
	a.	b.	mean.	mass.	Air dry.	Desiccated.	
1	2.02	1.98	2.00	98.00	4.532	4.624	
2	2.33	2.33	2.33	97.67	5.057	5.177	
3	1.78	1.76	1.77	98.23	4.938	5.027	
4	2.03	2.03	2.03	97.97	6.107	6.233	
5	3.92	3.89	3.905	96.095	2.863	2.979	
6	4.44	4.46	4.45	95.55	4.079	4.268	
7	3.63	3.68	3.655	96.345	3.507	3.640	
8	4.08	4.11	4.095	95.905	3.578	3.731	
9	2.03	2.03	2.03	97.97	5.415	5.527	
10	3.31	3.31	3.31	96.69	5.534	5.723	
11	8.40	8.35	8.375	91.625	2.672	2.916	
12	5.60	5.63	5.615	94.385	2.886	3.036	
13	2.24	2.30	2.27	97.73	4.795	4.907	
14	3.00	2.92	2.96	97.04	5.415	5.580	
15	7.57	7.53	7.55	92.45	2.851	3.084	
16	4.71	4.71	4.71	95.29	3.483	3.655	

The 16 samples used were derived from the following experiments:

1. An old sample of oxide on being removed from the purifier was divided into two parts. No. 1 was sifted on the second day; No. 2 was regenerated moist. Sample No. 1 contained 4.624 % of blue; No. 2 contained 5.177 %, consequently 0.553 % more.

2. Old mass, treated as in 1. No. 3, 5.027 %; No. 4 (regenerated moist) 6.233 %; No. 4 therefore contained 1.206 % more.

3. New mass treated as in 1. No. 5 contained 2.979 %, No. 6, 4.268 %, that is 1.289 % more.

4. Old mass. Sample No. 7 was immediately sifted and contained 3.640 % of blue. No. 8 was in addition sprinkled with a little water; it showed a percentage of 3.731, 0.091 more.

5. Old mass. Sample No. 9 sifted after lying for one day; No. 10 regenerated moist; No. 9 showed a percentage of 5.527, No. 10 of 5.723, or about 0.2 more.

6. Fresher mass: a small portion, sample No. 11, sifted after lying for one day; the larger part, No. 12, immediately sifted. No. 11, 2.916 %, No. 12, 3.036 %. Increase of 0.12.

7. Old mass. One portion: No. 13, immediately sifted. No. 14, regenerated moist. No. 13, 4.907 %, against 5.580 in No. 14. Increase 0.673.

8. New mass treated as in 7. No. 15 contained 3.084 %; No. 16, (moist) 3.655 %, or 0.571 more.

Table III. gives the results of these experiments.

TABLE III.

No of Experiment.	No. Sample.	Amount of Blue.	
		In 100 pts. substance.	Increase in 2nd Sample.
I	1	4'624	0'553
	2	5'117	
II	3	5'027	1'206
	4	6'233	
III	5	2'979	1'289
	6	4'268	
IV.	7	3'640	0'091
	8	3'731	
V.	9	5'527	0'196
	10	5'723	
VI.	11	2'916	0'120
	12	3'036	
VII.	13	4'907	0'673
	14	5'580	
VIII.	15	3'084	0'571
	16	3'655	

Since the experiments aimed at a study of the actual working conditions in a works, experiments 1, 2, and 3 were arranged so as to fit in with the usual process. The mass, as it was removed from the purifiers, remained in heaps until on the following day labour was available to sift it and spread it out for regeneration. The heating of the mass was considerable, and the differences found in the amount of blue are relatively large.

Experiments IV. and VI. indeed only showed a small difference between the amounts of blue in the sample, but this can be readily explained. In experiment IV the portion sprinkled with water was a large one, and the mass undergoing active regeneration, so that an unfavourable result was anticipated; it is quoted however, in order not to suppress any of the experiments which were actually made. In experiment VI the amount sifted was small, and the heating of the mass could therefore only be slight. Nos. VII. and VIII., with differences of more than $\frac{1}{2}\%$, may be considered very favourable ones, and we may regard the influence of ammonia upon the amount of blue formed as distinctly proved.

The presence of ammonia in the spent oxide used for purifying illuminating gas, then, produces a double formation of sulphocyanide. Even when a diminution of this ammonia in the purifiers cannot be attained, the formation of sulphocyanide can nevertheless be diminished during regeneration by taking care; (1) to avoid too great heating of the mass; and (2) to remove the ammonia as soon as possible.

Both of these ends are attained by keeping the mass as moist as possible and by sifting the mass in the moist state as soon as possible after it has been removed from the purifiers, and then at once spreading it out for regeneration. It must, however, be remembered that old masses are not capable of taking up so much water as fresh ones, so that the water produced in the absorption of sulphuretted hydrogen may cause complications, and that sifting immediately often sets up rapid regeneration, so that, unless the mass is exposed to a good current of air, the rise of temperature which takes place is favourable to the production of sulphocyanide.

One question can still be asked: How is the occurrence of Prussian blue explained, and under what conditions is it formed, in view of the statement that the conversion of cyanogen into sulphocyanide takes place so readily in the presence of ammonia and sulphuretted hydrogen, and it would therefore be supposed that no Prussian blue but only sulphocyanide compounds would be formed? The answer to this objection is given by the following: A considerable portion of the cyanogen escapes absorption in the first purifier, whilst ammonia and sulphuretted hydrogen are for the most part absorbed in it. Cyanogen therefore passes into that part of the purifiers where no sulphuretted hydrogen and only traces of ammonia are present. The fresh oxide at these spots is able to form cyanogen compounds of iron, which cannot be converted into sulphocyanides by the action of ammonia and sulphuretted hydrogen at the ordinary temperature. This change can however, proceed at a higher temperature such as may be produced during regeneration, and it is this portion of the blue which can be saved by proper treatment of the spent oxide, even in works where the gas is not sufficiently washed.

THE ST. HELENS WATER WORKS.—On Thursday last the recent additions to the St. Helens Water Works were opened by the Mayor. The additions include a plant for the softening of the water, which is very hard and contains some iron. An opportunity being afforded us for inspecting these works prior to the formal opening, a full account of the plant for softening the water by lime treatment will appear next week. The plant has been erected by Messrs Woodhouse Rawson United, Limited.

THE TYNE CHEMICAL TRADE.

THE following list has been specially abstracted from the year analysis made by the Tyne Improvement Commissioners of goods imported and exported from the Tyne. As the figures include coastwise shipments, the coastwise total is given as well as the total for the year, the difference being the amount of the foreign imports and exports respectively. The annual total for the previous year is also given for the purposes of comparison.

IMPORTS.

Description of Goods.		Total Coastwise.	Total 1899.	Total 1900.
Candles	Tons.	1,036	1,050	1,021
Barytes	"	1,823	2,849	1,821
Copperas	"	123	123	—
Nitre cake and salt cake	"	—	—	6,000
Soap	"	2,545	2,546	2,546
Arsenic	"	301	301	—
Unenumerated chemicals	"	659	1,309	—
Glucose	"	130	578	—
Drysalts' stores	"	4,369	5,006	—
Litharge and colours	"	653	988	—
Ochre	"	206	280	—
Nitrate of soda	"	43	6,150	—
Phosphates	"	253	17,916	—
Burnt sulphur ore	"	67,715	69,593	—
Sulphur ore	"	—	73,174	—
Salt	"	65,065	75,155	—
Oils (mineral)	"	6,145	18,137	—
Oils (other sorts)	"	3,398	4,115	—
Mineral tar and pitch	"	922	1,006	—
Margarine	"	—	1,560	—
Cutch	"	5	5	—
Esparto grass	"	—	11,540	—
Resin	"	27	3,623	—
Sumac	"	218	273	—
Tar and pitch	Brls.	487	6,430	—
Valonia	Tons.	49	69	—

EXPORTS.

Alkali and soda ash	Tons.	1,270	10,588	14
Alum and alum cake	"	2,913	3,529	3
Ammonia and salammoniac ..	"	25	2,232	2
Arsenic	"	24	322	—
Barytes (carbonate and sulphate) ..	"	1,276	6,007	3
Sodium bicarbonate	"	9	25	—
Bleaching powder	"	9,601	28,725	27
Caustic soda	"	8,824	20,320	20
Copperas	"	122	311	—
Epsom salts	"	76	83	—
Sodium hyposulphite	"	455	916	—
Magnesia	"	111	316	—
Manganate of soda	"	108	108	—
Manure	"	7,472	22,055	19
Sodium nitrate	"	118	286	—
Potash	"	27	38	—
Pearl hardening and gypsum ..	"	542	1,353	2
Soap	"	264	273	—
Soda crystals	"	50,742	54,584	64
Sodium sulphate	"	115	4,563	—
Sulphur	"	1,012	10,208	—
Silicate of soda	"	91	595	—
Unenumerated chemicals	"	207	725	—
Glue	"	21	22	—
Litharge	"	396	909	—
Red and white lead and paint ..	"	14,078	19,998	19
Oil, varnish, and turpentine ..	"	6,562	6,900	—
Paper	"	5,073	5,548	—
Salt	"	175	201	—
Slag and mill cinders	"	476	977	—
Ochres	"	6	63	—
Tar, pitch, and resin	"	219	645	—
Venetian red	"	34	72	—
Vinegar and acids	"	—	75	—

It is interesting to know to what countries the larger shipments of the more important items go or come, and we have therefore appended the following special analysis:—

EXPORTS.—The chief source of barytes was Belgium and Holland, which 1 016 tons were shipped. Of the glucose imported, 439 were from U.S.A. Of phosphates 12,348 tons were from African s. 4,078 from Holland and Belgium, 1,237 from France. Of our ore 42,772 tons came from Spain, and 30,402 from Portugal. salt 10,007 tons were imported from Germany. Of mineral oils 1 tons came from U.S.A., and 2,139 from Russia. Of margarine 9 tons came from Holland and Belgium.

EXPORTS.—The largest shipments of alkali were to Sweden, to this country 2,065 tons were sent, followed by 1,652 to U.S.A., 1 to Germany, 1,009 to Holland and Belgium. Of bleaching 6,415 tons were sent to Russia. 3,770 to Belgium and Holland, 3,248 to Germany. Of caustic soda 2,831 tons went to the U.S.A., 9 to Russia, and 1,996 to Italy and Malta. Of soda crystals the est shipments went to U.S.A., amounting to 1,565 tons. Of our Sweden took 2,615 tons, Norway 2,212, and Holland and 2,146, none was sent to U.S.A.

EXPORTS OF PETROLEUM FROM U.S.A.

The chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of January, 1893, and during the 7 months ending January 31st, 1893, as follows:—The total value of the shipments for January was £557,694., as against £649,444. in January, 1892; and for the 7 months ending January 31st, 1893, £4,986,301., as against £5,459,603. in 1892. The shipments were as follows:—

CRUDE PETROLEUM.	
	Gallons.
Total for January, 1893.....	7,483,747
Total for January, 1892.....	10,178,020
Total for 7 months ending January 31st, 1893..	67,503,922
Total for 7 months ending January 31st, 1892..	68,794,228
NAPHTHAS.	
Total for January, 1893.....	1,010,433
Total for January, 1892.....	615,453
Total for 7 months ending January 31st, 1893 ..	12,210,615
Total for 7 months ending January 31st, 1892 ..	8,177,526
ILLUMINATING.	
Total for January, 1893.....	44,912,564
Total for January, 1892	38,875,431
Total for 7 months ending January 31st, 1893 ..	360,866,221
Total for 7 months ending January 31st, 1892 ..	3 9,521,630
LUBRICATING.	
Total for January, 1893.....	1,891,532
Total for January, 1892.....	2,874,957
Total for 7 months ending January 31st, 1893 ..	19,500,192
Total for 7 months ending January 31st, 1892 ..	20,065,460
RESIDUUM.	
Total for January 1893.....	7,392
Total for January, 1892	21,840
Total for 7 months ending January 31st, 1893 ..	102,942
Total for 7 months ending January 31st, 1892 ..	280,938

IMPROVEMENTS IN THE MANUFACTURE OF BORAX.

By H. N. WARREN.

BORACIC, or boric acid, as is well known, is one of the feeblest acids to be met with, being readily replaced by all other known acids, and even in some respects by carbonic acid; but on the other hand, viewing it as an anhydride, we find it standing foremost, and at elevated temperatures even slowly replacing such acids as phosphoric and sulphuric acids. Boric anhydride is in fact when pure almost insoluble at the most elevated temperatures obtainable. A tared crucible containing an ounce of the substance which had been heated to a full white heat for over two hours, was found after cooling to have lost in weight but five grains. The peculiarities of the acid, however, are vastly different; volatilizing readily on the application of heat, in so much that it is practically able to distil a solution containing boracic acid without a portion going into the distillate. Again, if boracic acid is melted at a low heat in a platinum or other suitable vessel, as long as aqueous vapors are discharged, volatilization of the boron present is perceptible about seventy per cent. of the water present is discharged, the remaining portion of water being expelled in an almost pure condition, thus meanwhile gradually subsiding, leaving the anhydride.

Taking advantage of these properties, the author has devised a method by which the production of borax is brought about, by subjecting common salt (sodium chloride) to the action of the crude boracic acid of commerce, aided by superheated steam; the decomposition is effected by using large clay retorts, composed for the most part of acid-resisting material, the tops being tubulated to allow the introduction of the steam required during the reaction. The retorts being charged with an intimate mixture, consisting of well-ground salt and boracic acid, the neck of the retort being connected with a refrigerator for the purpose of condensing the acid thus obtained. Directly the retorts assume a low red heat, hydrochloric acid is disengaged in abundance; the heat is now slightly raised, and the supply of steam so regulated that water in the form of steam is allowed to enter through the tubulure in sufficient quantity to condense the hydrochloric acid formed in connection with the refrigerator. The result is speedy and complete decomposition of the salt employed, with the production of anhydrous borax, which remains in the retorts, whilst a dense and pure acid collects from the condenser. When the reaction is terminated the contents of the retorts, consisting of anhydrous borax, is ejected whilst still red hot into cold water, where it is allowed to remain for forty-eight hours, during which time it will have passed into solution, from which, by the ordinary routine of crystallization, it is obtained as ordinary commercial borax.

Paper Makers' Column.

ESTIMATION OF MECHANICAL WOOD IN PAPERS.

GODEFFROY AND COULON'S METHOD.

(Specially contributed)

A METHOD for accurately estimating the amount of mechanical wood in paper has been the subject of much investigation of late, some of the methods which have been suggested and investigated being of unusual interest. In Germany, where paper testing is more universally demanded than in England, chemists have made extensive experiments on this subject.

Dr. Müller was the first to suggest a quantitative analytical method for estimating mechanical wood. It was based on the solubility of pure cellulose in cuprammonium, but it was soon found to yield anything but accurate results, and has been abandoned as inapplicable.

Messrs Godeffroy and Coulon in 1888 introduced a method based on the reducing power of ligneous wood on chloride of gold in solution. These investigators made and published a series of researches setting forth the details of the manipulation of their method and their results. They found that linen and cotton cellulose did not act upon the chloride of gold, nor did cellulose prepared from straw or wood provided these are previously digested in water, alcohol, and ether in succession. Wood on the contrary did not lose its reducing power after treatment with these reagents. A method was therefore formulated on these observations, of which the following is the outline.

A quantity of the paper under examination was weighed off, and first digested in cold, then in hot water, and finally in successive quantities of a boiling solution of tartaric acid in 80% alcohol, till the fluid failed to yield a turbidity when poured into a large volume of cold water. In this way the resin size is removed. The paper is again washed with hot and cold water, dried, and, lastly, extracted with alcohol and ether. It is then boiled up with 20 c.c. of an aqueous solution of gold chloride containing 0.2233 grm Au., and the reduced metallic gold estimated. It was found that 100 parts of white fine wood yielded 14 parts of metallic Au.

The reducing power of the willow, aspen, elm, Scotch fir, white pine, etc., were found to be nearly alike.

In their investigations they attempted to find means to shorten the method by (1) using other reagents for extracting the resin size, etc., and (2) to use a cheaper reagent than gold chloride. It was found, however, that other reagents, such as Fehling's solution and alkaline solution of tartrate of bismuth, as substitutes for gold chloride, did not act well, and it was finally proved that gold chloride alone gave constant results.

Instead of extracting with water, alcohol, and ether, in order to shorten the method, a 10% solution of ammonia was tried. This withdrew a quantity of encrusting substances from the wood, a brown fluid being obtained, which yielded on evaporation a brown resinous mass. The amount of encrusting substances removed varied in the different kinds of wood, e.g.,

Maple wood	11.662%	ammonia extract.
Poplar wood	13.639%	"
Beech wood	14.675%	"
Scotch fir wood	4.214%	"
Spruce wood	4.103%	"

The wood, after being boiled with diluted ammonia, reduced chloride of gold powerfully. Wood or straw cellulose treated with aqueous ammonia yields a pale yellow solution, and neither of these after such treatment act upon chloride of gold. The cellulose from linen and cotton behave in a similar way. A large number of experiments showed that the different kinds of wood pulp extracted with 10% fluid ammonia exerted a nearly equal reducing power. The results obtained were as follows:—

Poplar	1 test	..	..	..	21'34177% gold
"	2 "	..	..	..	21'30285 "
"	3 "	..	..	..	21'53870 "
Spruce	1 "	..	..	..	20'77594 "
"	2 "	..	..	..	21'43874 "
"	3 "	..	..	..	21'51431 "
Scotch fir	1 "	..	..	..	21'02285 "
"	2 "	..	..	..	21'00846 "
"	3 "	..	..	..	21'34453 "
Maple	..	..	..	..	21'36700 "
Nut-tree	..	..	..	..	21'40700 "

Average 21'242 "

The gold factor (21'2), as it has been called, is larger when the ground wood pulps are extracted with ammonia than when they are treated with alcohol and ether. In the latter case it is only 14.

Godeffroy gives the following directions for the determination, which occupies about six hours. Two strips cut from the sample of paper under investigation are freed from moisture by drying at 212° Fah. and weighed separately. They are then rolled up and loosely enveloped in platinum wire, and boiled up with successive quantities of fresh distilled water to remove animal size if this is present. If the paper contains resin size the strips are boiled in a beaker glass with 90% alcohol containing a little tartaric acid. After this is done they are boiled in a 10% ammonia solution for about ten minutes, the yellow fluid being poured off, and this operation repeated with fresh ammonia as long as the liquid is coloured yellow. Finally the strips are washed with hot water till all traces of ammonia are removed, and then dried.

One of the strips is used for determining the ash, whilst the other is used for the wood determination. For this purpose it is boiled with the quantity of gold chloride indicated above, diluted with as much water as will completely cover it. After boiling ten or fifteen minutes the paper with the reduced gold is collected in a filter, washed, dried, ignited in a porcelain crucible, and weighed. The quantity of ash found in the paper is deducted from this weight, and the percentage of mechanical wood pulp calculated from the remainder. If "g" denotes the quantity of separated gold in grammes, and "h" the required quantity of wood pulp, then:

$$\frac{100}{21'2} = \frac{h}{g}; \text{ i.e., } h = \frac{100g}{21'2}$$

or to obtain the quantity of wood pulp present in grammes multiply the weight in grammes of gold found by 100, and divide the product by the constant 21'2. From this the percentage can be calculated on the above determined dry weight of the paper.

Agricultural Notes.

VALUES OF MANURES.

A VERY useful guide for purchasers of manures and feeding stuffs has just been issued by the Highland and Agricultural Society, this being a scale of unit values to be used in determining a fair price. The manures are classified as follows:—

"Fish Guano.—Finely ground, and containing not more than 3 per cent. oil. Frey-Bentos Guano.—(a) Meat meal, free from horn, yielding over 13 per cent. ammonia. (b) Mixed scrap, yielding 7 to 8 per cent. ammonia and 30 to 40 per cent. phosphates. Bone Meal.—(a) 90 per cent. passing $\frac{1}{4}$ -inch sieve; (b) Coarser. Genuine bone meal contains 45 per cent. to 55 per cent. phosphates and from $4\frac{1}{2}$ per cent. to $5\frac{1}{2}$ per cent. ammonia. The better qualities contain little or no fat. Steamed Bone Flour.—Ground to flour and containing about 60 per cent. phosphates and about 2 per cent. ammonia. Dissolved Bones.—Must be pure—i.e., containing nothing but natural bones and sulphuric acid. Dissolved Compounds.—Including 'dissolved bone manures' and all special manures consisting of ingredients mixed together and dissolved as a whole. The 'average' units should be used in valuing ordinary well-made dissolved compounds. If the manure is of superior manufacture and of high concentration, the units used should be above the average; if of inferior manufacture, or of low concentration, the units used should be below average. In valuing such manures for associations the units employed must be specified. Mixtures.—To be valued according to the unit values (as given above) of the ingredients

of which they are guaranteed and also found to be composed, addition of from 5 to 10 per cent., according to the fitness for manufacture. Thomas-Slag and Ground Phosphates.—Fine grinding is of paramount importance. The coarsest kind may be so finely ground that 80 per cent. passes through a sieve of holes per square inch."

The following table gives the unit values for the present year, which are compulsory on all local analytical associations: grants from the Highland Society:—

UNIT VALUES FOR SEASON OF 1893.

	Phosphates.		Ammonia.		Potash.	
	Dissolved.	Undissolved.	s.	d.	s.	d.
Guano:—	s.	d.	s.	d.	s.	d.
Ichaboe.....	—	2 0	16	0	—	25
Peruvian (riddled) ..	—	2 0	17	6	3 6	25
Scrap Manures:—						
Fish guano	—	1 5	10	0	—	13
Frey-Bentos guano (a) ..	—	1 6	11	6	—	13
Ditto (b)	—	1 4	10	0	—	13
Bone meal (a)	—	1 4	10	0	—	13
Ditto (b)	—	1 3	9	6	—	13
Steamed bone flour....	—	1 5	10	0	—	13
Dissolved or vitriolated bones.....	2 6	1 6	11	6	—	13
Superphosphates	—	1 11	—	—	—	13
Dissolved Compounds:						
From.....	2 0	1 3	10	0	3 4	—
To.....	2 6	1 9	12	0	3 8	—
Average	2 3	1 6	11	0	3 6	—

MANURING PASTURE LAND.

In the report of the Agricultural College at Bangor on the manurements made during 1890, 1891, and 1892, upon the manuring of the following general suggestions are made upon this subject.

"Phosphatic manures, containing phosphoric acid, in a easily assimilable, are the most valuable manures for use on pasture land. The manures encourage a fine bottom growth and clover herbage. Superphosphate and basic slag are economical phosphatic manures for this land, and, while the manures give good results, on the whole the economical are largely in favour of basic slag of the best quality. This, however, cannot be said of the basic slag of inferior quality. The real superphosphate and basic slag are practically exhausted in the year of their application, but, although the weight of the herbage increased after that time, the quality is very much improved for purposes. Bone meal and dissolved bones are more permanent effects than superphosphate or basic slag, but they act more slowly, especially the bone meal. The herbage is now very improved for grazing purposes where these manures have been used. Nitrate of soda largely increases the total bulk of hay produced, encourages the strong growing grasses and brings the herbage to maturity. The results show that this manure is valuable in producing heavy crops of hay, but that it is not suited for pasture land; it destroys the fine bottom herbage by encouraging the coarse grasses, and by discouraging clovers and allied plants. Kainit potash manure, has given slightly increased results, but the value increased produce is less than the value of the kainit applied. applied to this exhausted land, even in the third season after application, has had almost no effect in improving the quality or bulk of herbage. In many cases the manures have encouraged the best and pasture plants, and have discouraged the weeds, but even plots that show most improvement weeds are not exterminated, especially the yellow-rattle, which has proved to be troublesome."

CRYSTALLIZATION OF COPPER SULPHATE.—The liability of a lized copper sulphate to effloresce has recently been investigated by Messrs. Baubigny and Péchard, who find that crystals obtained from neutral solutions are much less liable to efflorescence than those from acid solutions. Even very small traces of sulphuric acid in the development of this phenomenon. They have found crystals prepared from very slightly acid solutions were quite before those prepared from a perfectly neutral solution hardly any signs of efflorescing. If, however, care is taken to obtain a solution from which the crystals are to be obtained being a neutral to methylorange a definite and thoroughly stable crystal will be obtained.

THE BAUXITE BEDS OF ALABAMA.

By HENRY M'CALLIEY.

It was first discovered in Alabama in 1889. The first discovery was at the Dykes Limonite Banks, Cherokee county. It has been found at the Walker Limonite Banks, near Calhoun county, at the Laney Old Manganese Banks, and at two places near Arniston, Calhoun county. Its are all in the lower part of the Lower Silurian. The old Calhoun deposits are at the bottom of the Knox Safford of Tennessee, now believed to be Upper Cambrian. The Cleburn deposit is in the upper part of the Weizner Middle Cambrian, believed to be identical with the Chilone of Safford. They are all in sections of country that taken up by sharp folds and great thrust faults, and in characters of the rocks have been greatly changed, doubtless heat produced in their folding and faulting. They are all strata, though they occur along regular leads and show more variation in all of the cuts that have been made upon them. About as do the limonite and clays with which they are associated, though they appear to show more evidences of it. They are so closely associated with the limonite and their deposits appear to be greatest where the limonite and clays are greatest.

Cherokee deposits appear to occur along the crest of two sharp anticlinals covered by debris, that run in a general North and West course and are from 150 to 200 yards apart. These anticlinals is a sharp synclinal, and it is more than half of some of the bauxite deposits of the anticlinals, as irregular masses, are connected, or are continuous, under the surface, synclinal trough. The largest limonite and clay deposits of this section are in the synclinal trough, and it is believed developments will show the largest bauxite deposits to be rough. The bauxite, in places at least, is on the top of a stone and under or in the lower part of an unctuous clay. It is usually on the top or in the lower part of this unctuous mass, however, there is bauxite seemingly on the top of the bed in still other places it occurs in the clay as large masses of nodular concretions. The Calhoun deposits, in the few that have been made upon them, also appear to be on the top of an anticlinal. The Cleburn deposit has never been dug for only as a few loose bowlders on the surface. Alabama bauxites have not as yet been dug into sufficiently to make a rough approximate estimate to be formed as to their thickness. All enough has been done on the Cherokee deposits to show they have in them an immense amount of ore. They show in limonite old diggings to the depth of 75 feet. In one digging, the Dykes Bank proper, the bauxite, as an mass about 60 feet thick, shows from the top to the bottom about 75 feet deep. This is the only place in which the bauxite is shown, though in half a dozen other places from a few feet in thickness of it can be seen. It has been seen by the intervals on both of the anticlinals for a distance of about one mile, and it is said to show at intervals on both anticlinals a series of nearly five miles.

Calhoun deposits show at intervals in a north-north-east and west course for about 250 yards. They have not been dug into to show either the thickness or even the quality of the ore of the pits or trenches, however, a thickness of about 25 feet can be seen.

Alabama bauxites are mostly concretionary or pisolitic, though some are earthy or clay-like. The eyes or concretions are the size of a small pea, though sometimes they get to be concretionary nodules of some two inches in diameter. The clay-like variety has often a metallic ring. The Alabama bauxites are of white, red, and gray colours.

Cherokee bauxite, in car load samples as sent to the manufacturer, said to have about the following approximate analysis:—
Alumina, from 50 per cent. to 60 per cent.
Iron oxide, about 2.75 per cent.

Silica, from 25 per cent. to 30 per cent.
Organic matter, principally silica, about 7 per cent.

Phosphoric acid, from 2 per cent. to 3 per cent.
Analysis shows the Cherokee ores to be of very fine quality.

It is said by the manufacturers, a somewhat smaller percentage of alumina than do the Baux, or Frons, ores with which they are in competition, but that they are more soluble, and hence are more valuable.

Only about 5,000 tons of bauxite has ever been shipped from Alabama. It has gone to Philadelphia and Natrona, Penn., and Buffalo and Brooklyn, N.Y., and to other places. It has been principally for the manufacture of alum by the sulphuric acid process. The Alabama ores cannot be laid down in the above

markets as cheaply as the Baux ores, and hence, if it was not for their superiority, they could not compete at all with the Baux ores. As it is, the profits are said to be small, and so it is not likely that the bauxite industry of Alabama will become very great until a home market is created for the ore. This, it is hoped, will soon be the case, as an aluminium plant is said to be now under way near Rome, Ga., U.S.A.

Parliamentary Jottings.

THE DANGERS OF COLOUR MAKING.

IN the House of Commons recently, Mr. Hogan asked the Home Secretary whether his attention had been called to statements in the newspapers alleging that a large amount of suffering was entailed upon workmen engaged in the manufacture of the colours known as emerald green and Milan red; whether he was aware that this manufacture had been scheduled under the Factory Act, 1891, as a dangerous calling; and whether it was possible to frame such regulations as would render the operations innocuous to the workmen engaged; and if not, whether he was prepared to follow the example of some Continental countries and prohibit the particular process in question.

Mr. Asquith said his attention was called some time ago to this matter by the Attorney General. He had requested two of Her Majesty's inspectors to make an exhaustive inquiry and to consult experts on the subject, and their investigations were approaching completion. He expected that a report would be presented next week, when he would be able to take more active measures. The inquiry would include white lead.

ALUMINIUM HORSE-SHOES.

Mr. Flynn asked the Secretary of State for War whether the attention of the War Office had been called to the fact that aluminium horse-shoes had been tried by the Russian cavalry with the most successful results; was he aware that they preserved the feet of horses much better than iron ones, as the shoes never broke, that they could be used over and over again and were only one-third the weight of iron shoes; and whether the War Office could see their way to giving them a trial.

Mr. Campbell-Bannerman: My attention has been drawn to these horse-shoes, which have been well tested in the German and Russian armies. The aluminium shoes have several advantages; but it is doubtful whether they preserve the horses' feet better than iron shoes, and their cost is at present prohibitive.

THE RAILWAY AND CANAL TRAFFIC BILL.

This Bill which has recently been introduced into the House of Commons, and is backed by Messrs. Williams, Jones and Brunner, and others, is intended to provide simple and effective machinery by which the public may obtain on the spot an enquiry into and decision of complaints against railway companies. The Bill directs that every county council shall either in itself or in concert with another county council or other county councils appoint a traffic committee, one third of the members of which may be chosen from outside. To this committee any person—firm, company, or local authority—may present a complaint where a railway company or companies fails to provide passengers with sufficient number of trains, proper carriages supplied with sufficient light and heat, proper arrangements for the issue of ordinary and season tickets, reasonable ordinary, return, and season ticket fares, proper time tables and information, suitable workmen's trains at reasonable fares, sufficient and convenient station and other accommodation, or when two or more railway companies fail to make proper arrangements for interchange of passenger traffic where they have a common terminus, stations adjoining, or near to each other, or a portion of the same line of railway in common.

Trade Notes.

CONTRACT FOR BLEACH.—At a recent meeting of the Health Committee of the St. Helens Corporation the offer of the United Alkali Co., Ltd., to supply bleaching powder at £8. per ton was accepted. This is an advance of ten shillings on the last contract.

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—On Wednesday last a meeting of this section was held in the Chemical Laboratory, University College, when a paper was read by Mr. J. W. Kynaston on "Suggestions as to the treatment of the waste gases of the Chance-Claus Sulphur Recovery Process."

SWEATING SOVEREIGNS.—At the Manchester Police Court this week a man named Brumby was committed for trial for sweating sovereigns.

Suspicion was aroused by the prisoner tendering a light coin, which was found to have been depreciated to the extent of about half-a-crown. The case is an interesting one, as it is over twenty years since the last prosecution was instituted. The Mint authorities have been communicated with.

THE GLASSBLOWERS' STRIKE.—Dr. Max Hirsch, secretary of the German trade unions, has received a letter from Mr. Fenwick, secretary of the English trade unions, informing him that the English glass bottle manufacturers, in view of the strike in England, are importing German bottles. Mr. Fenwick requests Dr. Hirsch to inform the German workmen of the state of affairs that they may do all possible to prevent the export to England, which injures the interests of the English glassblowers. The democratic *Volkszeitung* expresses the hope that the German workmen will do all in their power to support their English comrades.

ELECTROLYSIS IN EARNEST.—We hear on good authority that Messrs. W. T. Gibbs and Co have recently purchased a "water-power" at Ottawa, estimated at 15,000 h.p., which will be used entirely in electrolytic processes. We believe it is intended, amongst other things, to manufacture chlorate of potash, caustic potash and bleaching powder, a goodly share of which is intended for export. It is also currently reported that Mr. John Brock and Dr. Ferd. Hurter are about to proceed to the States to critically examine the "Le Sueur" process and its merits. It may be some consolation to English producers that we have no Ottawa "falls" in this country capable of being tapped with profit.

BOTTLE WAX.—Rundschau gives the following directions for making cheap waxes for bottling: *Blue*—Melt 1,000 parts of clear brown coloured resin, and add to it 12 parts of cinnabar, rubbed down fine with 8 parts of cottonseed oil, then 15 parts of zinc white and 85 parts of ultramarine blue mixed with 12 parts of cottonseed oil. *Red*—Clear brown resin 100 parts, tallow 25 parts; melt, and add a mixture of cinnabar, 8 parts, and refined resin oil 6 parts. *Yellow*—Clear brown resin 200 parts, tallow 20 parts, chrome yellow 12 parts, prepared chalk in fine powder 2 parts, resin oil 6 parts; prepare in the same way as the red. *Green*—Clear brown resin 200 parts, tallow 20 parts, Bremer blue 6 parts, ochre 6 parts, prepared chalk in fine powder 2 parts, refined resin oil 3 parts.

AUSTRALIAN EXHIBITS AT CHICAGO.—New South Wales is the only one of the Australian colonies that will be represented at the World's Fair at Chicago. All the courts of the colony are further advanced in the installation of the exhibition than any other nation. The art exhibits of New South Wales will occupy 6,000 square feet of floor space and 10,000 square feet of wall space. The arts court will be a most attractive feature of the display the colony is making. There will be a collection of over 600 large photos of the public buildings and works of the colony, street views and country scenery. There will also be exhibits from the technological museum, the technical museum, and the technical college, and from the public schools of the colony. The work of installing the exhibits in the mining court is almost complete, and when finished New South Wales will rank first among the mining nations that will be represented. One of the main features of the display will be an ornamental column 38ft. high, representing only a seventh of the silver product of the famous Broken Hill Mine. All the ethnological exhibits of the colony have arrived.

NOTICES.

LONDON AGENTS.

booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

MISCELLANEOUS CHEMICAL MARK

The market continues active in bleaching powder, price firm at £8. nett, on rails, makers' works, and £8. 10s. net on wood casks, f.o.b. In alkali of all grades, trade is quiet, but are without quotable change, current values being for soda 58% 1½d. to 1¾d. per degree, f.o.b., and for Leblanc soda. The prices of caustic soda for prompt delivery are as follow Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, 60%, £8. 10s.; cream, 60%, £8. 5s.—10 ton lots and up recovered sulphur there is no improvement in price or demotions being still £4. 2s. 6d. on rails, makers' works. Potash and soda remain scarce for early delivery, and maintained at 9½d. and 10d. per lb., respectively. Soda ash and price unchanged. Bicarbonate, £6. 5s. to £6. 10s. Cake still depressed, and selling in all districts at low prices of copper £16. 5s. to £16. 10s. f.o.b., with moderate discounts acetates of lime, brown and grey, there is little enquiry, and prices in prices. In acetic acid and other acetates trade is quiet. Carbolic acid crystals are slightly firmer, and in other crude and refined carbolic acids supplies are more difficult and prices generally are higher. White powdered arsenic is at £13. 10s., but demand is light in home trade. Aniline is are respectively 6¾d. to 6¼d. per lb. Potash, caustic, and are in poor request, and prices are a little easier. Borax firm in price at £29. Prussiate of potash 9¾d. per lb. for spot and forward business doing at slightly easier rates. In all the chemical trade business is reported exceedingly quiet in

REPORT ON MANURE MATERIAL.

There has been a fair amount of business passing, notwithstanding the holiday interruption, and prices all round are well. Shippers of mineral phosphates seem inclined to stand out on prices, but buyers do not respond, their requirements being covered well ahead. The nearest value of Florida 75/80% per unit, in cargoes, c.i.f. to United Kingdom, and ¼d. to c.i.f. Continent. For Peace River rock 7d. per unit, and dried South Carolina River rock 6½d. per unit asked, but they are scarcely obtainable. A cargo of River Plate bones was sold at £4. 2s. 6d., but considerably less would have to be for anything afloat, but too late for this season's requirement. For crushed Kurrachee bones on spot £4. 5s., ex store, for autumn shipment 2s. 6d. less would do. Bone meal is spot and near at hand, and the price has advanced to £4. 10s. or store, fair average quality; £4. 15s. for fine quality.

Nitrate of soda is very firm on spot and for near at hand. 10s. 4½d. is now lowest for ordinary quality, and 10s. 6d. for Due cargoes, ordinary quality, are worth about 10s. 4½d. refined of handy size more money would have to be paid.

Dried blood is in demand, and 12s. per unit nearest value ground, high test, in doubles, f.o.b. Liverpool; unground bags, 10s. to 10s. 6d. per unit. Kainit is very scarce, and enquired for at 47s. 6d. per ton, in bags, for Garston or Liver

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron brisker. Scotch warran at 40s. 11d. cash. Middlesbrough 34s. 6d. cash, and Hen 6d. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s £45. 3s. 9d. to £45. 11s. 3d. cash, and £45. 12s. 6d. three months. Tin quiet. Straits closed at £93. 15s. to £93. cash and £91. nominal three months. Australian, £94. 7½ English ingots, £97. Lead, steady; Spanish, £99. English £10. to £10. 2s. 6d. Silesian spelter: Ordinary, £17. 12s. 6d. Nickel, 1s. 8½d. per lb. Antimony, £42. Q First hands, £6. 10s. second hands, £6. 9s. Copper in Cape, 1½ to 1¾. Copiapo, 2½ to 2¾. Libiola, 3 to 3½ and Barry, 2½ to 2¾; Rio Tinto, 15½ to 15¾; Tharsis, 5 Namaqua, 1 to 1¼; Panulcillo, ¾ to 1.

HAMPTON, WEDNESDAY.—The expected reduction in wages somewhat weakened the market to-day, but business postponed until the quarterly meetings next week. Sheets, at £6. 12s. 6d. upwards, doubles £7., and lattens £7. £6. to £6 10s.; tube strips, £5. 15s.; plates, £7. to 10s.; common, £5. 12s. 6d. upwards. Pigs at quarterly meeting developments. Derbyshires 42s. Northampton, 40s. as a minimum; Staffordshire part mines, 35s. Coal depressed.

W. WEDNESDAY.—Market firm, with small business. at 40s. 11½d. cash, also at 41s. 1½d. one month; closing at 40s. 11d. cash, and 41s. 1½d. one month; sellers ask 41s. 2d. one month. Middlesbrough closes with buyers 1 cash and 34s. 9d. one month; sellers ask 1½d. more than with buyers at 45s. 6d. cash; sellers ask 45s. 9d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

Alum oil is steady with more enquiry. Sales have been at £28., and Accra £27., both transit. Olive continues quiet, prices range from £34. to £42. per tun, according to seed is rather dull, the enquiry being poor; prices may for Liverpool makes as 20s. 9d. to 21s. 6d. per cwt. in Rape is slow of sale with refined Stettin at 29s. and per cwt. Cottonseed is firm, Liverpool refined being 6d. to 25s. per cwt. Castor oil steady, good seconds worth 2½d. to 2½d. per lb. First pressure French 2½d. low is without alteration. Resin, common, 4s. per cwt., but is quiet after the holidays. Spirits of turpentine are 9d. per cwt. Petroleum remains with American 4¼d. according to quality; Russian refined, 4¾d. to 4½d. per

S rule very steady. Ochres: Oxfordshire, common, £10., 2., best, £15.; Derbyshire, common, 40s.; medium, 50s., Velsh, best, 70s., seconds, 50s., and common, 18s.; Irish, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. Turkish quiet. Devonshire, 50s. to 55s. White lead, red oxide of zinc unchanged. Venetian red, £6. 10s. to £10. per cwt. black, 9s. 9d.; blue, 6s. 6d. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £10.; finest, £20. Zinc oxide, £22. to £23.

TYNE CHEMICAL REPORT.

TUESDAY.

continue steady with bleach scarce at £8. 5s. per ton, (woods). Prices of other products unaltered.

powder, softs, £8. 5s. per ton nett; hard, £8. 10s. caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ed sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 8. 6d. per ton, 52%, £4. 10s. 3d. per ton, 56%, £5. per 36%, £5 per ton; white alkali, 48%, £6. per ton, 50%, on, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; la, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per , £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. s weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett orate of potash, 10d. per lb. nett; pearl hardening, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; 7. 10s. per ton; chloride of barium, £7. 10s. per ton; alumina, £28. 15s. per ton nett; aluminate of soda, r ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, net.

ham salt is still 9s. per ton, f.o.b. Tees.

business somewhat unsettled owing to holidays. Best North- m, 8s. 6d. per ton; second qualities, 8s.; small steam, l. per ton; gas coals, 6s. to 6s. 3d.; coke quiet, 14s. to on.

LIVERPOOL MINERAL MARKET.

et this week has ruled steady. Manganese continues ate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. ride, £15.; carbonate, £12. 10s., steady. Magnesite quiet, and prices are unchanged; calcined £12. 10s. h Hill brand) brisk at full prices; lump 20s., seconds 2s. French chalk: Arrivals are below the average, and

prices are unchanged, both for "Angel White" brand and "Silvery," Barytes: Carbonate, very scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and manganiferous quiet. Emery-stone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal are in good demand, but there is no change to report in prices. Chrome ore, best qualities, are in good demand, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

If there is any change to record as regards the market for the ordinary chemicals, it must be that the stagnation has been still more marked, probably owing partly to the Glasgow spring holiday, which was observed yesterday, and for which preparations began at the close of last week. There is no exception to the rule of flatness except in bleaching powder which is still very firm, and in sulphate of ammonia which is still very scarce for spot requirements, and therefore high. However, it is on report that one or two parcels have been bought two or three weeks forward at £12. 10s., which seems to indicate a belief that the late high top prices are soon to give way, partially at least. Some additional sales, May-September delivery, have been done at about £11. 10s. Chlorate of potash has receded another farthing, but the others, though flat to a degree, retain former quotations.

The mineral oil and paraffin markets are unchanged. There have been rumours of collusion between the American and Russian producers (boding no good for the Scotch makers), but the statement has been denied.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 2s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; saltcake, 25s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 9d., less 5% Liverpool; nitrate of soda, 10s. 4½d.; sulphate of ammonia, spot £12. 15s. to £13. f.o.b. Leith; salammmoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 865°, £3. 15s., to £4.; 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 57,633 bags.

New Companies.

Asphaltic Limestone Concrete Co., Ltd.—CAPITAL £20,000., in £5. shares. This company has been formed to carry on the business hitherto prosecuted by H. Melsom and C. W. Bradshaw, and to trade as asphalt importers, manufacturers, and contractors. The subscribers to the memorandum of association are:—H. Melsom, 121, Colmore-road, Birmingham, asphalt contractor; J. V. Hawkins, 121, Colmore-road, Birmingham, accountant; C. W. Bradshaw, 52, Queen Victoria-street, asphalt contractor; C. D. Newton, Bedford-row, W.C., architect; G. Deakin, 32, Paradise-street, Birmingham, estate agent; J. T. Tyler, 1, Lincoln's Inn, Birmingham, solicitor; A. E. Hopson, 1, Lincoln's Inn, Birmingham, solicitor.

James Epps and Co., Ltd.—CAPITAL £200,000. in £5. shares. The object of this company is to take over and carry on the business

hitherto carried on by J. Epps, under the title of James Epps and Co., and Franklin, Epps and Co., and to manufacture and deal in cocoa, to trade as chemists, druggists, electrical, chemical, and scientific apparatus dealers. The subscribers to the memorandum of association are:—James Epps, Holland-street, S.E., manufacturing chemist; H. Epps, Holland-street, S.E., manufacturing chemist; J. Epps, junr., Holland-street, S.E., manufacturing chemist; E. D. Linton, Herne Hill, confidential clerk; J. Hummel, Wandsworth Common, S.W., clerk; G. Starling, Lorimer-square, S.E., clerk; J. W. Woodley, Crouch End, N., clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Non-Inflammable Cement. R. J. Doyle. 5,938. March 20.
Non-Inflammable Paint. " 5,939. March 20.
Improvement in Gas Washers and Scrubbers. J. H. Fitzgerald. 5,951. March 20.
Ice Making Machines. J. W. Bowley. 5,954. March 20.
Smokeless Boiler Furnaces. A. B. Crowder. 5,985. March 21.
Recovery of Gold and Silver from Cyanide Solutions. C. M. Pielsticker. 5,996. March 21.
Colouring Matters. H. F. Newton. 6,035. March 21.
Production of Black and Dark Colours. A. Blanchon and A. Alleygret. 6,046. March 21.
Treating Hydrated Phosphates of Alumina and Iron to obtain Fertilizers. H. H. Lake. 6,061. March 21.
Tanks or Cells for Electrolytic and other Chemical Purposes. H. Trauu. 6,163. March 22.
Removing Solid Impurities from Water or other Liquids. E. H. Riddell. 5,247. March 23.
Colouring Matters of the Auramine Class. J. Y. Johnson. 6,249. March 23.
Smoke Consuming Furnaces. H. G. Hudson, W. M. Rennie, and J. Graham. 6,295. March 24.
Improved Process and Apparatus for the Extraction of Gold. E. De Pass. 6,302. March 24.
Improved Apparatus for the Manufacture of Water Gas. A. G. Glasgow. 6,324. March 24.

GERMAN PATENTS for week ending MARCH 30th.

Specially abstracted by Dr. H. Zerener, civil engineer, the Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to at once protest against the of such new Patents as may collide with the interests of industry.

12 C. 4,129. Preparing lactyl derivatives of methyl and ethyl anisidine and P phenelidine. Chem. Fabr. vormals Goldberger and Co., Winkel Rheingau.
12 C. 4,491. Recovering iron from waste suitable for the preparation of aniline bases. Chem. Fabr. Grunau Landshoff and Meyer, Grunau.
40 G. 7,915. Preparation of manganese. W. H. Greco and W. J. Philadelphia.
48 D. 5,316. Electroplating on aluminium. Deutsch-Osmar, Maschinenwerke, Berlin, N.W.
12 F. 5,804. Obtaining oxygen from air. The Oxygen Producing Co., London.
22 Sch. 8,183. Preparing brown dyestuffs from Quebracho wood. Schuster, Forst i/L.
75 M. 9,191. Electrolytical apparatus. T. Marx, Bad-Nauheim.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

G. PITT, G. W. PITT and A. WALKER, under the style of George Pitt & Co., Leeds, glue manufacturers.
W. STEAD and P. L. STEAD, oil merchants, Leeds, under the style of S. A. J. BALE and G. H. BAKER, under the style of Bales, Bale and Co., street, London, E.C., importers of Irish bog ore, precipitated and spent oxide, and sulphate of ammonia contractors.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

PINHORN, ALFRED, Southampton, linseed and cotton cake and arable merchant.

Adjudications.

SCHONSTADT, MORITZ HENRY (described in the receiving order as Schönstadt), and trading as Moritz H. Schönstadt, also as the Asbestos and Indiarubber Co., Farringdon-road, E.C., and Snow Hill ham, indiarubber and asbestos merchant.
BERTRAM, WILLIAM, Cardiff, oil and grease merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 25th.

Acetanilide—
Holland, 4 pkgs. R. Morrison & Co.
Acetic Acid—
Holland, 5 pkgs. F. Stahlschmidt & Co.
" 150 A. & M. Zimmermann
Alkali—
France, 465 c. Arnati & Harrison
Antimony—
Corsica, 200 t. Novelli & Co.
N. S. W., 21 T. Merry & Son
Singapore, 30 Pillow, Jones & Co.
" 5 H. Grey, jun.
Bastia, 30 Smith, Sundius & Co.
Australia, 16 Major & Field
" 6 Welch, Perrin, & Co.
France, 1 B. & F. Wf. Co., Ltd.
N. Zealand, 24 James & Shakespeare
Australia, 8 H. Bath & Son
Asbestos—
Italy, £110 London Asbestos Co.
" 54 J. Walker & Co.
U. States, 189 Witty & Wyatt
Barytes—
Holland, 110 cks. T. & W. Farmiloe
Germany, 19 P. Jantzen
Borate of Lime—
" 573 pkgs. A. Hughes
Caoutchouc—
France, 4 c. Flageollet & Co.
E. Indies, 84 J. Swire & Sons

Zanzibar, 20 L. & I. D. Jt. Co.
Savannah, 65 Stiebel Bros.
E. Indies, 32 Kleinwort, Sons, & Co.
France, 50 Mory & Co.
Savannah, 3 Major & Field
U. States, 105 Prop. Bull Wf.
Cape, 3 L. & I. D. Jt. Co.
Madagascar, 52 Hammond & Co.
" 7 Clarke & Smith
Carbolic Acid—
Germany, 20 pkgs. Roseberg, Loewe, & Co.
Castor Oil—
France, 40 brls J. T. Morton
" 86 J. Greig
" 70 Lucas & Spencer's Wf., Ltd.
" 48 57 cks. Beresford & Co.
" 32 Windschuegl & Co.
" 13 Grindley & Co.
" 2 B. & N. Whv. Co., Ltd.
Caustic Potash—
France, 19 drs. Spies Bros. & Co.
" 4 cks. Beresford & Co.
Chemicals (otherwise undescribed)
Germany, 22 pkgs. £5 T. H. Lee
" 45 A. & M. Zimmermann
U. States, 71 Hughes, Chemery, & Co.
Germany, £12 F. Stahlschmidt & Co.
" 3 10 L. & I. D. Jt. Co.
" 10 Craven & Co.
" 12 Domeier & Co.

Queensland, 10 Laughland, Mackay & Co.
Germany, 5 W. Burton & Sons
France, 5 Mory & Co.
Chloride of Lime—
France, 28 pkgs. Mead, Son, & Co.
Chloride of Sulphur—
Germany, 10 pkgs. Typke & King
Cream of Tartar—
France, 11 pkgs. Maconochie Bros.
" 14 C. F. Gerhardt
Spain, 20 W. C. Bacon & Co.
" 3 B. & F. Wf. Co., Ltd.
" 2 Evans, Lescher, & Co.
" 5 H. R. Boyer
France, 10 W. C. Bacon & Co.
" 1 J. L. Lyon & Co.
Spain, 1 Evans, Lescher, & Co.
Holland, 57 Middleton & Co.
Dyestuffs—
Argols
Italy, 910 pkgs. B. Jacob & Sons
" 16 Thames S. T. & L. Co., Ltd.
Cochineal
Canaries, 24 pkgs. Marshall & French
" 10 Swanston & Co.
Extracts
France, 80 pkgs. Prop. Chamblin's Wf.
" 45 B. & F. Wf. Co., Ltd.
" 137 Carey & Sons
Denmark, 2 Bailey & Leatham
Belgium, 25 Leach & Co.
Denmark, 1 J. Sinclair & Son

U. States, 50 L. & I.
Denmark, 50 Van Agt
France, 2 W. Nicol
Gambier
E. Indies, 370 pkgs. Beresford
" 344 Brindley
" 252 R. & J. J.
Indigo
E. Indies, 759 chta. L. & I.
" 10 Croy
" 139 P.
Italy, 9 L. & I.
E. Indies, 49 Forbes, Tait
" 1 Masterson
" 15 Ros
" 60 R. Van Giel
Myrabolams
E. Indies, 512 pkgs. Clark
" 300
" 4,040 R. G. H.
" 300 Grah
Orehella
Ceylon, 27 pkgs. R. G. H.
Sumac
Italy, 250 pkgs. W. & S.
" 50 J. R.
Tanners' Bark
Natal, 32 t. A. & V.
" 51 Hickey & N.
Turneric
Hong Kong, 10 pkgs. H. A.
China, 259 Melchers, R.
N. Zealand, 3 Anders
Valonia
A. Turkey, 120 t. Berg
" 25 T. J.

Is (otherwise undescribed)
30 pkgs. Skilbeck Bros.

100 pkgs. Seaward Bros.
100 J. Cooper
50 J. Barber & Co.

Chalk—
675 Stobbs, Wilson, & Co.

28 pkgs. 210 c. J. Knill & Co.

205 1,127 c. L. Sutro & Co.
219 219 Trier, Meyer, & Co.

112 616 Prop. Chamblin's Wf.

600 600 J. F. Ohlmann
500 500 C. F. Webster & Co.

1,000 1,000 Roake, Roberts, & Co.
220 1,703 T. M. Duche & Sons

500 501 R. G. Hall & Co.
500 500 Prop. Fenning's Wf.

150 920 D. Thomas
8 42 Beck & Pollitzer

205 1,193 Prop. Chamblin's Wf.
30 107 Hicks, Nash, & Co.

68 pkgs. A. Gibbs & Sons

ese—
450 L. J. Swire & Sons
13 H. Johnson & Sons

8 L. Beresford & Co.
6 F. W. Berk & Co.

39 N. S. S. Co., Ltd.
40 Williams, Torrey, & Co., Ltd.

Alcohol—
8 dms. Lister & Biggs
8 cks. L. & I. D. Jt. Co.

4 L. & I. D. Jt. Co.

£35 Knight & Morris

4 pkgs. Philipps & Graves
40 cks. W. Fenton

160 W. Harrison & Co.
48 J. L. Lyon & Co.

Colours—
19 pkgs. T. H. Lee
5 D. Currie & Co.

7 Flageollet & Co.
3 H. Lambert

25 M. Bencher
5 Philipps & Graves

26 T. Palmer
13 G. Rahn & Co.

8 Philipps & Graves
2 J. Barber & Co.

6 Hernu, Peron, & Co.
12 F. Corfield & Smith

28 8 cks. L. & I. D. Jt. Co.
21 Major & Field

Wax—
1,000 brls. J. H. Usmar & Co.
64 C. Ogleby & Co.

ate Rock—
50 t. C. A. & H. Nichols
100 West & Penrose

160 J. Burnett & Sons
290 Sawyer, Sons, & Oakley

71 F. W. Berk & Co.
605 A. Hunter & Co.

ago—
70 brls. Doulton & Co.
318 Dunlop Bros. & Co.

53 cks. B. Gallaway
19 cs. Rahn & Co.

286 pkgs. 340 brls. J. Threder, Son, & Co.
114 brls. Prop. Sun Wf.

128 R. G. Hall & Co.
137 Prop. Scott's Wf.

23 cs. T. H. Lee

110 c. F. W. Berk & Co., Ltd.

um Carbonate—
140 c. F. Boehm
1 ck. M. D. Co.

60 Beresford & Co.

Potassium Chloride—
Germany, 1,000 pkgs. F. W. Berk & Co., Ltd.

Potassium Cyanide—
Holland, 3 pkgs. R. Morrison & Co.
10 F. Boehm

Potassium Sulphate—
Germany, 200 pkgs. Anglo Contl. G. Wks.

Pyrites—
Spain, 1,150 t. Anderson, Anderson, & Co.
Portugal, 1,000 Mason & Barry, Ltd.

Rosin—
U. States, 4,253 brls. H. Hill & Sons

Sal Acetos—
Belgium, 10 pkgs. T. Palmer

Salicylates—
Holland, 6 pkgs. R. Morrison & Co.

Saltpetre—
Chili, 14,032 bgs. A. Ford & Co.
Germany, 70 cks. T. Merry & Son

Sodium Acetate—
France, 9 pkgs. S. F. Waters & Co.

Sodium Hyposulphite—
Holland, 200 pkgs. Beresford & Co.

Sodium Sulphate—
Holland, 37 pkgs. Beresford & Co.

Stearine—
Belgium, 63 bgs. 4 cks. Union L. Co., Ltd.

377 H. Hill & Sons
200 G. Boor & Co.

166 Beresford & Co.
109 H. Hill & Sons

10 W. Meyerstein & Co.

Sulphur—
Carthage, 100 t. A. Hunter & Co.

Tallow—
N. Zealand, 17 cks. Brown & Elmslie
82 N. Z. L. & M. A. Co.

134 Flack, Chandler, & Co.
France, 59 Williams, Torrey, & Co., Ltd.

Sydney, 100 Horne & Co.
126 Pillow, Jones, & Co.

Queensland, 10 Leach & Co.
208 N. Z. L. & M. A. Co.

42 Coml. Bkg. Co. of Sydney
80 Aust. Meat Co.

37 D. J. Keymer & Co.
12 Dyster, Nalder, & Co.

Sydney, 22 J. Graves
Queensland, 63 Anning & Cobb

254 Philipps & Graves
156 Goad, Riggs, & Co.

N. Zealand, 7 E. Davis & Co.
33 J. Morrison & Co.

Queensland, 27 Pillow, Jones, & Co.
N. Zealand, 4 R. Brooks & Co.

Tallow and Stearine—
Germany, 10 cks. T. H. Lee

Tartaric Acid—
Holland, 3 pkgs. Ross & Deering
France, 22 B. & F. Wf. Co., Ltd.

10 Anderson, Weber, & Smith
Holland, 5 Middleton & Co.

Turpentine—
N. Russia, 104 brls. C. B. Leighton

Ultramarine—
Holland, 6 cs. 20 cks. Hernu, Peron, & Co.

3 Philipps & Graves
9 Haefner, Hilpert, & Co.

Belgium, 3 pkgs. W. Harrison & Co.
Germany, 4 cks. H. Lambert

Varnish—
France, 12 pkgs. Flageollet & Co.
Belgium, 12 Stobbs, Wilson, & Co.

Vermilion—
Hong Kong, 5 pkgs. R. Warner & Co.

White Lead—
Germany, 5 cks. Steadman & Co.
France, 10 Burrell & Co.

Holland, 16 Blundell, Spence & Co.
Germany, 6 H. Lambert

40 Craig & Rose
37 S. H. Willoughby

24 M. Ashby, Ltd.
11 W. Taylor, jun., & Co.

Belgium, 96 J. L. Lyon & Co.
Holland, 13 cks. J. Owen

36 Burrell & Co.
Germany, 27 Spies Brs & Co.

27 W. A. Rose & Co.
Holland, 18 A. & M. Zimmermann

France, 10 J. Watt & Son
Belgium, 25 Colthurst & Harding

Zinc Oxide—
Holland, 25 brls. M. Ashby, Ltd.
Germany, 5 cks. Beresford & Co.

Holland, 25 Burrell & Co.
Zinc Sulphate—
Germany, 40 pkgs. Grosscurth & Luboldt

LIVERPOOL.

Week ending March 23rd.

Acetic Acid—
Rotterdam, 5 cks.

Alumina Sulphate—
Rotterdam, 4 cks.

Ammonium Chloride—
Hamburg, 1 ck.

Antimony—
Antofagasta, 325 bgs. Hainsworth, Watson & Co.

Asbestos—
Portland, M., 1,260 bgs. Antwerp, 1 cs.

Barytes—
Antwerp, 95 bgs. Rotterdam, 12 cks.

Bone Ash—
Campana, 208 bgs.

Bone Meal—
Bombay, 11,456 bgs.

Caoutchouc—
Havre, 7 pkgs. Cunard S. S. Co.

Castor Oil—
Bombay, 6 cs. G. Tattersall
Calcutta, 2,000 Ralli Brs.

Chemicals (otherwise undescribed)
Rotterdam, 3 cks.

Chloroform—
In transit, 2 cs. Cunard S. S. Co.

Colours—
Hamburg, 7 cs. Bremerhaven, 2 cks.

Rotterdam, 14
Antwerp, 3 brls. J. T. Fletcher & Co.

Cream of Tartar—
Barcelona, 1 bd. 5 cks. 5 brls.
Tarragona, 5 hds.

Marseilles, 4
Rotterdam, 1

Dyestuffs—
Cochineal
Las Palmas, 5 sks. Sperling & Williams

Gutch
Rangoon, 4,912 bxs.

Divi Divi
Hamburg, 366 bgs.

Extracts
Baltimore, 2 brls. Harvey, Peek & Co.

10
Bordeaux, 100 cks.

Fustic
Vera Cruz, 2,881 logs. Bourne, Graham & Co.

Gambier
Tampico, 3,373 pcs. Oetting & Co.

Indigo
Singapore, 1,266 bls.

Bombay, 120 cs. 200 bgs. Forbes, Forbes & Co.

13
Calcutta, 6 cks. J. Hodges

Indigo Extract
Philadelphia, 6 cs.

Myrabolams
Bombay, 1,292 pkts. O. Martin & Co.

2,481 bgs.
Calcutta, 1,200 1,976

Bombay, 4,475 bgs. D. Sassoon & Co.
666 Ralli Brs.

200 Forbes, Forbes & Co.

Orchella
Lisbon, 379 bls.

10 J. Martin & Son
34 Edwards Brs.

11 A. Ba. Rosa & Co.

Sumac
Barcelona, 100 bgs.

Turmeric
Calcutta, 200 bgs.

Valonia
Smyrna, 80 t. 3,645 bgs.

26 Essayan Thahum
60 P. T. Apostolo
414 bgs. C. G. Papayanni & Co.

Hamburg, 146

Farina—
Hamburg, 100 bgs. Brown, Geveke & Co.

French Chalk—
Rouen, 4 cs. Co-op. W'sale Society

Glucose—
New York, 530 brls.
Baltimore, 403

Horn Piths—
Hamburg, 44 bgs.

Lead Acetate—
Hamburg, 18 cks.

Limestone—
Antwerp, 1 crt.

Manganese—
Yokohama, 152 t.
Bordeaux, 450 R. J. Francis & Co.
Poti, 2,260 Irvin & Sellars

Nitrate—
Rotterdam, 20 cks.

Ochre—
Marseilles, 64 brls.
Rouen, 103 cks. Co-op. W'sale Society

Paraffin Scale—
Philadelphia, 300 brls.

Phosphate Rock—
Coosaw, 2,321 t. J. Adgar & Co.

Pitch—
Bordeaux, 51 cks. R. J. Francis & Co.

Potash—
Rouen, 44 cks. Co-op. W'sale Society

Rotterdam, 30
Dunkirk, 14 54 dms.

Pyrites—
Huelva, 1,332 t. Tennants & Co.

Quicksilver—
Gijon, 100 flks. A. Ruffer & Sons

Rosin—
Baltimore, 314 brls.
Bordeaux, 473 cks.

Saltpetre—
Hamburg, 75 brls.
Calcutta, 474 bls. 978 bgs.

Soap—
N. Orleans, 1,100 brls.
Philadelphia, 1,200 bxs. 50 crts.

Stearine—
Antwerp, 76 bgs.

Tallow—
Gibraltar, 46 cks. W. Gossage & Son

Tannic Acid—
Hamburg, 16 cks.

Tartar—
Bordeaux, 8 cks.

Tartar Emetic—
Hamburg, 2 cks.

Tartaric Acid—
Rotterdam, 21 cks.

Turpentine—
Bilbao, 1 brl. 1 cs.

Ultramarine—
Hamburg, 3 cs.
Rotterdam, 9 cks

Verdigris—
Bordeaux, 1 cs.

White Lead—
Antwerp, 6 cks.
Rotterdam, 20

Zinc Ashes—
Antwerp, 9 cks. J. T. Fletcher & Co.

Zinc Oxide—
Antwerp, 40 brls.

HULL.

Week ending March 25th.

Alkali—
Flushing, 3 cks.

Alum—
Rotterdam, 37 cks. W. & C. L. Ring-rose

Asbestos—
Flushing, 5 cs. Wilson, Sons & Co., Ltd.

Barytes—
Antwerp, 59 cks. 30 bgs. Bailey & Leatham

Bremen, 47 G. Holmes & Co.
20

Bone Meal—
Kurrachee, 5,000 bgs.
Bombay, 2,000

Caoutchouc—
Hamburg, 10 cs. C. M. Lofthouse & Co.

Chemicals (otherwise undecribed)
Rotterdam, 1 ck. Hutchinson & S. n
Antwerp, 112 pks. 4 cs. Wilson, Sons & Co., Ld.

Dunkirk, 56
Stettin, 16 30 cks. "

Colours—
Stettin, 10 brls. Wilson, Sons & Co., Ld.

Ghent, 7 cks. "

Antwerp, 2
Flushing, 27 17 cs. 2 pkgs.

Rotterdam, 1 10 pks. W. & C. L. Ringrose

" 2 Hanger, Watson & Harris

Danzig, 65
Bremen, 1 1 cs. Veltmann & Co.

" 4 N. T. Greaves

Rotterdam, 54 17 Hutchinson & Son

Flushing, 34 40 Wilson, Sons & Co., Ld.

Antwerp, 1 brl.

Hamburg, 3 6 Bailey & Leatham

Cream of Tartar—
Rotterdam, 1 ck. W. & C. L. Ringrose

Dextrine—
Stettin, 602 bgs. Wilson, Sons & Co., Ld.

Dyestuffs—
Alizarine

Flushing, 33 cks. 1 cs. W. & C. L. Ringrose

Rotterdam, 24 "

" 17 1 cs. Hutchinson & Son

Flushing, 34 9 Wilson, Sons & Co., Ld.

Indigo

Kurrachee, 26 cs. Wilson, Sons & Co., Ld.

Madder

Rotterdam, 3 cks. W. & C. L. Ringrose

Myrabolams

Bombay, 4,936 bgs.

Farina—
Ghent, 172 bxs. Wilson, Sons & Co., Ld.

Harlingen, 50 bgs. 100 pkgs.

Danzig, 200

Rotterdam, 21 bls. Hutchinson & Son

Stettin, 3,861 bgs. Wilson, Sons & Co., Ld.

Glucose—
Stettin, 12 cks. 40 kgs. Wilson Sons & Co., Ld.

" 1,700 bgs.

New York, 430 brls.

Limestone—
Antwerp, 2 pks. Wilson, Sons & Co., Ld.

Manure—
Ghent, 1,632 bgs. 100 t. Wilson, Sons & Co., Ld.

Naphthol—
Hamburg, 4 cks. Wilson, Sons & Co., Ld.

Paint—
New York, 130 pks. Wilson, Sons & Co., Ld.

Pitch—
Ghent, 50 brls. Wilson, Sons & Co., Ld.

Soap—
New York, 625 pks.

Stearine—
Antwerp, 63 bgs. Wilson, Sons & Co., Ld.

Tallow—
New York, 60 trcs. Wilson, Sons & Co., Ld.

Tar—
Dunkirk, 3 cs. Wilson, Sons & Co., Ld.

Tartaric Acid—
Rotterdam, 2 cks. W. & C. L. Ringrose

Ultramarine—
Hamburg, 4 cks.

Waste Salt—
Hamburg, 101 bgs.

" 1,632 Bailey & Leatham

White Lead—
Antwerp, 56 cks. Bailey & Leatham

Rotterdam, 43 A. Sanderson & Co.

" 40 Tudor & Sons

Zinc Oxide—
Rotterdam, 25 cks. Hutchinson & Son

GLASGOW.

Week ending March 30th.

Arachide Oil—
Rotterdam, 3 cks. J. Rankine & Son

Barytes—
Antwerp, 50 bgs.

Hamburg, 12 cks.

Bone Meal—
Bombay, 3,102 bgs.

Carbolic Acid—
Christiana, 2 brls.

Castor Oil—
Marseilles, 116 cks. 75 pkgs.

Antwerp, 84

Chemicals (otherwise undecribed)

Colours—
Rotterdam, 3 cs. 1 ck. J. Rankine & Son

Hamburg, 4 1

Amsterdam, 1 3

Cream of Tartar—
Marseilles, 16 cks.

Dyestuffs—
Alizarine

Rotterdam, 18 brls. 6 cks. J. Rankine & Son

Extracts

Fiume, 225 brls.

Rotterdam, 1 cs. 1 ck. J. Rankine & Son

Antwerp, 8

Farina—
Hamburg, 600 bgs.

Danzig, 400 500 bls.

French Chalk—
Fiume, 50 bgs. Currie & Co.

" 200

Glucose—
New York, 200 brls.

Lead Acetate—
Hamburg, 17 cks.

Manure—
Hamburg, 134 bgs.

Ochre—
Marseilles, 40 cks.

Paint—
Philadelphia, 3 brls.

Paraffin Scale—
Philadelphia, 1,000 brls. 100 cs.

Phosphate of Lime—
Dunkirk, 1,000 bgs.

Saltpetre—
Hamburg, 30 cks.

Soap—
New York, 350 brls.

Philadelphia, 1,150 bxs. 70 crts.

Rotterdam, 1 cs. J. Rankine & Son

Sodium Acetate—
Antwerp, 9 cks.

Tartaric Acid—
Messina, 20 cks.

Waste Salt—
Hamburg, 5,715 bgs.

White Lead—
Rotterdam, 24 cks. J. Rankine & Son

" 128

Zinc Ashes—
Philadelphia, 3 cs.

Zinc Oxide—
Rotterdam, 25 cks. J. Rankine & Son

Antwerp, 20

Zinc White—
Hamburg, 20 cks.

TYNE.

Week ending March 25th.

Alum Earth—
Hamburg, 18 cks. Tyne S. S. Co.

Barytes—
Rotterdam, 78 cks. Tyne S. S. Co.

Chemicals (otherwise undecribed)

Pyrites—
Hidva, 1,773 t. Scott Ers.

Saltpetre—
Hamburg, 11 cks. Tyne S. S. Co.

Soda—
Ghent, 1 brl. Tyne S. S. Co.

Stearine—
Bergen, 25 brls.

Antwerp, 12 bgs. Tyne S. S. Co.

GOOLE.

Week ending March 19th.

Acetic Acid—
Rotterdam, 4 cks.

Alizarine—
Rotterdam, 160 pkgs.

Antimony—
Boulogne, 1 ck. 20.

Dyestuffs (otherwise undecribed)

Boulogne, 29 cks. 40.

Farina—
Hamburg, 1,605 bgs.

Delfsryhl, 1,773

Glucose—
Hamburg, 97 cks.

Potash—
Dunkirk, 10 cks.

Saltpetre—
Rotterdam, 100 bgs.

Hamburg, 50 brls.

Waste Alum—
Hamburg, 5 brls.

Waste Salt—
Hamburg, 500 bgs.

Zinc Oxide—
Antwerp, 20 cks.

GRIMSBY.

Week ending March 1st.

Chemicals (otherwise undecribed)

Antwerp, 7 cks.

Hamburg, 27 pkgs.

Dyestuffs (otherwise undecribed)

Dieppe, 46 cks.

Farina—
Hamburg, 125 bgs.

Indigo—
Rotterdam, 3 pkgs.

Kalnit—
Hamburg, 236 bgs.

Size—
Antwerp, 9 cks.

Zinc Ashes—
Hamburg, 4 cs.

Antwerp, 9 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 29th.

Alkali—
Calcutta, 15 c. £16

Capetown, 15 4

Algoa Bay, 3 6

Alum—
Trebizonde, 2 t. 18 c. £16

Tangiers, 1 10 9

Aluminous Cake—
Copenhagen, 40 t. £100

Ammonia (Liquid)—
Auckland, 6 cs. £30

Wellington, 20 120

Ammonium Carbonate—
Yokohama, 10 cs. £18

Ammonium Chloride—
Constantinople, 17 c. £27

Galatz, 16 25

Ammonium Sulphate—
Ghent, 180 t. 5 c. £2,050

Batoum, 200 2,113

Hamburg, 190 2,253

Capetown, 1 12

Anhydrous Ammonia—
Dusseldorf, 23 cyldrs. £25

Arsenic—
Calcutta, 1 t. £23

Bleaching Powder—
Bahia, 2 c. £10

Borax—
Natal, 10 c. £16

Hamburg, 6 cks. 47

Carbolic Acid—
Hiogo, 40 cs. £128

Yokohama, 40 drs. 126

Hamburg, 6 t. 90

Philadelphia, 5 10 c. 97

Antwerp, 12 cks. 38

Rotterdam, 40 198

Caustic Soda—
Port Elizabeth, 11 c. £15

Sydney, 26 t. 9 c. 251

Natal, 12

Rio Janeiro, 12

Madeira, 1 7

Chemicals (otherwise undecribed)

Auckland, 1 kg. 18 cks.

Natal, 2 cs.

Adelaide, 5

Chloride of Lime—
Port Elizabeth, 6 c.

Citric Acid—
Cologne, 2 c.

Capetown, 1 kg.

Amsterdam, 2 c.

Hamburg, 1 t. 20 bgs. 1 ck.

Reval, 15

Barcelona, 16 c.

Batoum, 5

Coal Products—

Alizarina
Boston, 40 cks. £542
Bombay, 25 kgs. 171

Aniline
Melbourne, 2 cs. £69

Anthracene
Rotterdam, 98 cks. £739

Benzol
Philadelphia, 20 drs. £237
Calais, 20 cks. 99
Rotterdam, 195 166 pks. 1,612

Nitro Naphthalene
Cologne, 1 ck. £15

Pitch
Terneuzen, 739 t. £994
Duisburg, 135 170
Bordeaux, 587 794
Alexandria, 200 brls. 78

Tar
Rio Janeiro, 100 brls. £43
Algoa Bay, 120 drs. 44
Rangoon, 100 runs. 14
Bombay, 60 71
Sydney, 100 drs. 26

Toluol
Rotterdam, 8 cks. 10 pns. £153
Boulogne, 23 rns. 82

Copperas—
Trebirde, 5 t. 7 c. £13

Copper Sulphate—
Sydney, 5 t. £77
Batoum, 31 11 c. 473

Cream of Tartar—
Auckland, 11 c. £42
Wellington, 4 16
Adelaide, 1 t. 5 107
Canterbury, 1 5 22
Melbourne, 1 5 80
Sydney, 1 5 80

Disinfectants—
Singapore, 100 drs. £20
Shanghai, 9 pks. 20
Higo, 100 drs. 45
Freming, 100 35
Auckland, 20 cks. 17
Calcutta, 45 pks. 75
Adm, 16 10
Cape Town, 55 31
Hamburg, 25 cks. 125
Boston, 12 c. 20
Bombay, 202 pks. 113
Alexandria, 1 t. 36

Flowers of Sulphur—
Wellington, 1 t. £7

Hypophosphite of Lime—
Barcelona, 8 c. £127

Manure—
Rotterdam, 44 t. 25 c. £250
Jersey, 7 4 75
Trepot, 19 19 120
St. Lucia, 250 2,200
Newfairwater, 435 19 1,700
Gulbenburg, 172 8 588
Hamburg, 49 5 110
Barcelona, 40 340
Cape Town, 26 64
Havre, 15 50
Rosen, 114 480

Nitric Acid—
Auckland, 2 cs. £11
Jersey, 2 t. 15 c. 53

Oxalic Acid—
Seville, 14 c. £10
Bombay, 10 22

Phosphorus—
St. Elizabeth, 5 cs. £50

Potassium Bicarbonate—
New York, 10 kegs. £17

Potassium Bichromate—
Calcutta, 11 c. £22
Oporto, 2 cks. 25

Potassium Chlorate—
Auckland, 5 c. £18
Olesta, 1 t. 15 103

Potassium Cyanide—
Natal, 3 c. £16

Saltpetre—
Seville, 2 t. 2 c. £43
Wellington, 10 11
Adelaide, 1 18 40
Vigo, 2 5 50
Rio de Janeiro, 8 3 183
Bahia, 1 7 30
Lisbon, 3 5 67

Salts of Soda & Salts of Lime—
Brussels, 2 cs. £23

Sheep Dip—
Delagoa Bay, 100 drs. £23
Pt. Elizabeth, 30 48

Soda Ash—
Sydney, 25 t. 1 c. £136

Sodium Acetate—
Sydney, 2 t. 5 c. £65

Sodium Bicarbonate—
Mossel Bay, 6 c. £5
Hamburg, 10 4
Algoa Bay, 5 t. 51

Sodium Carbonate—
Natal, 11 c. £23

Sodium Hypophosphite—
Barcelona, 3 c. £85

Strontium Nitrate—
New York, 10 cks. £65

Sulphur—
Wellington, 1 t. £9
Natal, 8 2 c. 65
Lisbon, 200 brls. 154
E. London, 122 pks. 61

Sulphuric Acid—
Natal, 25 pks. £124
Algoa Bay, 15 t. 25 cs. 75
Bombay, 10 9

Superphosphate—
Harlingen, 10 t. £33
Rotterdam, 9 17 c. 38

Tartaric Acid—
Wellington, 4 c. £21
Auckland, 5 26
Adelaide, 10 56
Pt. Elizabeth, 2 14
Kurrachee, 15 82
Bombay, 4 23

LIVERPOOL.

Week ending March 29th.

Acetic Acid—
Lisbon, 16 c. £8
Piræus, 1 t. 13 20

Alum—
Dedcates, 2 t. £9
Bombay, 11 12 c. 62
St. John, 3 1 15
Calcutta, 50 200
Havana, 12 9 1 q 32
Kustendjie, 2 18 17

Ammonium Carbonate—
Alicante, 10 c. £14
Antwerp, 8 12

Ammonium Chloride—
Leghorn, 1 t. 11 c. £29
Rotterdam, 3 18 3 q. 67
Antwerp, 7 3 9
Mersyne, 12 20
Odessa, 5 8
Valparaiso, 1 8 3 31
Genoa, 2 4 2 70
Beyrout, 1 2 2 37
Alexandria, 2 66
Philadelphia, 28 3 2 626
Marseilles, 12 19
Naples, 10 16
Barcelona, 2 17 90

Ammonium Sulphate—
Leghorn, 9 t. 17 c. 2 q. £118
Ghent, 21 5 3 233
Boston, 34 7 376
Las Palmas, 3 38
Valencia, 113 14 2 1,191
Nantes, 10 102
Barbadoes, 205 10 2 2,472

Antimony—
Bombay, 1 ck. £18

Arsenic—
B. Ayres, 18 t. 2 q. £241

Asbestos—
Bombay, 1 rrs.
Cadiz, 22 bgs.

Bisulphide of Carbon—
Ceara, 4 c. £13

Bleaching Powder—
Ancona, 15 cks. 14 brls.
Bilbao, 15 48
Boston, 521
Ghent, 120
New York, 471 100
Odessa, 20
Oporto, 58 20
Pasages, 87
Philadelphia, 2
Valparaiso, 2 50 cs.
Venice, 4
Baltimore, 77
Calcutta, 151
Genoa, 50
Hamburg, 15
San Sebastian, 53
Vera Cruz, 214

Boracic Acid—
Antwerp, 1 t. 2 c. 3 q. £41
Rotterdam, 14 27

Borax—
Antwerp, 2 t. 14 c. £82
Constantinople, 15 15
Rio de Janeiro, 10 15
Bordeaux, 1 2 30
Callao, 1 13 2 51
Nantes, 1 2 30

Calcined Magnesia—
Alicante, 6 c. 3 q. £10

Calcium Chloride—
Baltimore, 13 t. £32

Carbolic Acid—
Hamburg, 10 c. £35
Para, 1 1 q. 2
Vera Cruz, 7 10
Calcutta, 1 3 5
Rotterdam, 10 35
New York, 9 t. 355

Caustic Potash—
San Francisco, 2 t. 4 c. £140
Chicago, 1 16 40

Caustic Soda—
Algoa Bay, 8 dms.
Almeria, 5 cks.
Ancona, 25
Bahia, 150
Barcelona, 50 35
Bari, 123
Bilbao, 15
B. Ayres, 50
Brisbane, 45
Calcutta, 293
Ceara, 35
Fairwater, 32
Havana, 126
Hamburg, 50
Havre, 6 brls.
Ibrail, 19
London, Ont., 25
Malta, 7
Maranham, 5
Matanzas, 6 50 kgs.
Melbourne, 50 12 pks.
M. Video, 180
New York, 1,430 200 brls.
Oporto, 70
Pernambuco, 125
Philadelphia, 25

China Clay—
Barcelona, 10 cks.
Bombay, 120 40 t.
Boston, 1,517 500
Canada, 30
Lisbon, 400 bgs.
Madras, 6
Rio de Janeiro, 5
Trieste, 30

Chloroform—
Montreal, 1 cs.

Chrome Ore—
Marseilles, 1 t. 5 c.

Chromium Trioxide—
Philadelphia, 1 t. £64

Citric Acid—
Vera Cruz, 2 c. £16

Coal Products—
Alizarine Oil
Lisbon, 2 cks.
Aniline Colours
Calcutta, 1 cs.
Bombay, 1
Aniline Oil
Lisbon, 6 brls.
Rouen, 5 dms.
Creosote Oil
Certe, 226 cks.
Ostend, 600 brls. 2 tks.

Pitch
Certe, 1,028 t.
Ibrail, 89 brls.
Bilbao, 40
Galatz, 60
Tar
Halifax, N.S., 20 brls.
Ibrail, 65
M. Video, 10
Sierra Leone, 13 cks.
Galatz, 66
Kustendjie, 50
Tultcha, 13 t. 14 c.

Cobalt Oxide—
Gijon, 1 c. £33

Colours—
Boston, 15 cks.
Valencia, 6 cs.

Copperas—
Dedcates, 2 t. 1 c. £3
St. John's, N.B., 5 11 3 q. 10
Alexandria, 2 12 3 6
Bourgas, 3 15 6
Beyrout, 3 6

Copper Sulphate—
Naples, 16 t. £215
Havre, 10 1 q. 160
Stambone, 18 c. 1 14
Ancona, 2 8 3 36
Antwerp, 1 1 2 16
Odessa, 2 14 40
Boca, 1 15 28
La Plata, 3 48
B. Ayres, 5 2 1 78
Tarragona, 21 8 2 319
Genoa, 10 12 2 156
Madras, 1 5 19
Tampico-Guadalupe, 5 t. 3 c. 74
Venice, 60 t. 3 c. 3 q. 879
Almeria, 1 15
Bordeaux, 205 19 3 3,217
Trieste, 2 5 1 35
Leghorn, 40 9 600

Disinfectants—
Montreal, 5 cs. £30
Natal, 8 c. 10

Dried Blood—
Baltimore, 50 t. 13 c. £490

Farina—
Genoa, 16 sks
Maranham, 15 cks.

Flowers of Sulphur—
Bahia, 5 c. 3 q. £3

Guano—
Hamburg, 10 t. £27

Gypsum—
New York, 73 t. 8 c. £242
Portland, M., 5 18 50

Iron Oxide—
Yarmouth, 2 t. 5 c. £12

Iron Sulphate—
M. Video, 2 t. 2 c. £4

Lime—
Cameroons, 2 t. 10 c. £3

Limestone—
Antwerp, 20 t.

Magnesia—			Phosphorus—			Sodium Arseniate—		
Paris, 8 cs.			M. Video, 1 t. 10 c.	£220		New York, 25 cks.		
Valparaiso, 20			Vera Cruz, 14 cs.	161		Sodium Biborate—		
Magnesium—			Mexico City, 5	55		New York, 3 brls.		
Maranham, 8 cks.			Havana, 3	43		Rotterdam, 5 cks.		
Magnesium Chloride—			Ploric Acid—			Vera Cruz, 2		
Madras, 2 t. 12 c.	£8		New York, 2 t. 5 c.	£120		Sodium Bicarbonate—		
Magnesium Hyposulphite—			Potassium Bichromate—			Alexandria, 200 kgs. 20 brls.		
Halifax, 2 dms.			Constantinople, 2 c.	£6		Barcelona, 180	50	
Magnesium Sulphate—			Rio de Janeiro, 14	1 q.	27	Bilbao, 507		
Bombay, 60 bgs.			Antwerp, 3 t. 6	128		Callao, 30		
Rio de Janeiro, 2 hds. 620 kgs. 50 brls.			Ancona, 10	2	14	Canterbury, N.Z., 20		
Victoria, B.C., 3 cs.			Potassium Carbonate—			Constantinople, 135	13	
Havre, 200			Rio de Janeiro, 11 c. 3 q.	£12		Copenhagen, 40		
Manganese—			Chicago, 3 t. 7	70		Durban, 20		
Hamburg, 5 t. 10 c.			Potassium Chlorate—			Frederickton, 100		
New York, 1 10			Havana, 1 t. 5 c.	£102		Genoa, 10		
Antwerp, 19 cks.			Vera Cruz, 4	302		Ghent, 10		
Manganese Sulphate—			Sao Paulo, 2	136		Gisborne, 10 bgs.		
Detroit, 1 t. 1 q.	£23		Leghorn, 1	84		Havre, 20		
Manure—			Rio de Janeiro, 22	10	1,587	Honolulu, 10		
Havre, 100 t. 2 c.	£470		New York, 22	10		Lisbon, 40		
Metallic Sodium—			Shanghai, 2	6	135	Madras, 25		
Rotterdam, 2 t. 17 c. 2 q.	£541		Boston, 5	10	336	Melbourne, 35		
Ochre—			Yokohama, 2	10	145	Odesa, 390		
Bahia, 15 brls.			Odessa, 20	10	29	Otago, 40		
Maranham, 13			Malmo, 1	66		Randers, 40		
Oxalic Acid—			Rotterdam, 4	269		Rotterdam, 40		
Yokohama, 11 c.	£15		Hamburg, 1	61		St. John's, N.B., 1,250		
Paint—			Hiogo, 22	10	1,301	Seville, 20	4	
Bombay, 19 pkgs.			Potassium Stannate—			Singapore, 7 brls.		
Caibarien, 1 ck.			Bombay, 1 t. 1 c.	£87		Venice, 24 dms. 100		
Halifax, N.S., 1			Salacetos—			Wellington, 50		
Madras, 11 cks.			Trieste, 5 c. 1 q.	£11		Antwerp, 1		
Manilla, 21	700 kgs.		Salt—			Montreal, 10		
New Orleans, 2	30 dms.		Boston, 75 t.			Volo, 10		
Ponce, 2			B. Ayres, 46	17 c.	200 cs.	Sodium Bichromate—		
St. John's, Nfld., 35	50		Cameroons, 18	15		Antwerp, 45 cks.		
Sierra Leone, 11	156	1 cs.	C. C. Castle, 130			Ghent, 16		
Vancouver, 11			Chicago, 130			Sodium Carbonate—		
Addah, 40	8		M. Video, 15	12	50	New York, 140 brls.		
Bathurst, 29			Salt Pond, 62	10		Barcelona, 39 cks.		
Beyrout, 1			Sierra Leone, 25	11		Sodium Chlorate—		
Ha ana, 16	80		Sinoe, 650			Boston, 50 kgs.		
La Plata, 1	10 brls.		Sydney, 320	2		Hamburg, 100		
Lima, 54			Victoria, B.C., 17	17		New York, 60		
Maranham, 2			Abonnema, 6	5		Lisbon, 2 cs.		
Nassau, 50 dms. 5			Accra, 8	19		Sodium Hyposulphite—		
Rangoon, 80	8 cs.		Algoa Bay, 175	7		Rio de Janeiro, 60 kgs.		
Rio de Janeiro, 80			Antwerp, 25	7		Sodium Silicate—		
Painters' Colours—			Boma, 13	7		Bilbao, 32 cks.		
Antwerp, 4 cks.			Buguma, 10	14		Fremantle, 5		
Calcutta, 50	10 dms.		Calcutta, 14,640			Lisbon, 16		
Capetown, 50			Capetown, 25			Piræus, 32		
E. London, 50	10 kgs.		Copenhagen, 300			Valencia, 15		
Galatz, 200	200		Ghent, 79			Victoria, B.C., 32		
Hamburg, 200	100 bgs.		Honolulu, 2			Alexandria, 16	20 brls.	
Havana, 24	1 cs.		Iceland, 125			Alicante, 160		
Ibrail, 200			Jones River, 25			Cartagena, S.A., 12		
Leghorn, 24	9 pkgs.		Landana, 30	14		Corunna, 10		
Nassau, 210	1 cs.		Loango, 17	8		Messina, 12		
New Orleans, 210			Manilla, 15	12		Sodium Sulphate—		
Odessa, 67	5		Matadi, 5			Rio de Janeiro, 35 kgs.		
San Juan, 50	10		Monrovia, 43			Sulphur—		
Taltal, 198	66 brls.		Old Calabar, 117	17		St. John's, N.B., 2 t.		
Alexandria, 6 cs.			Para, 221			Boston, 50	2 c.	
Baltimore, 206	5		St. John's, N.B., 100			Philadelphia, 80	2	
B. Ayres, 2	40 dms.		San Francisco, 50			New York, 200	5	
Guantanamo, 2			Saltpetre—			Vera Cruz, 1	1	
Havana, 4 tcs.			Pernambuco, 5 t. 13 c. 2 q.	£129		Iquique, 22	10	
Iquitos, 6 cs.			Para, 1	10	34	Rio de Janeiro, 1	10	
Montreal, 24 cs. 115	14		Larnaca, 2	5	48	Superphosphate—		
Para, 10 tcs. 24 cks. 115			Rio de Janeiro, 10	2	12	Valencia, 50 t. 8 c. 14		
Pernambuco, 25			Syra, 3	8	70	Las Palmas, 1		
Piræus, 2 cs.			Silicate—			Nantes, 300	8	3
Pisagua, 12			Amsterdam, 1 t. 10 c.	£10		Tallow—		
Santos, 25			Size—			Attoaboe, 1 ck.		
Talcahuano, 2			Melbourne, 5 cks.			Lisbon, 26 brls.		
Valparaiso, 58	209	412	New York, 6			Madras, 3		
Vera Cruz, 350	861 dms.		Ghent, 10			Manilla, 4		
Paraffin Wax —			Soap—			Rotterdam, 33 cks.		
Ancona, 3 cs.			Aarau, 135 bxs. 16	110 cs.		Antwerp, 14	10 tcs.	
Antwerp, 10			Belize, 130			Demerara, 1		
Odessa, 5 bgs.			Benin, 250			Huelva, 1		
Phosphate—			Bombay, 50	17		New York, 300		
Hamburg, 690 bgs.			B. Ayres, 100	1		Turpentine—		
			Brussels, 400			B. Ayres, 25 crls.		
			Cairo, 2			Singapore, 50 dms.		
			Callao, 1			Varnish—		
						Adelaide, 9 cs.		
						Constantinople, 2		
						Genoa, 6		
						Havana, 1		
						M. Video, 4	3 dms.	
						Beyrout, 6 brls.		
						Landana, 5		
						Madras, 5		

White Lead—

B. Ayres, 10 cks.
Copenhagen, S.A., 85 kgs.

Zinc Chloride—

Bombay, 1 t. 13 c.

Zinc Sulphate—

Madras, 1 t.

HULL.

Week ending March 25th.

Alkali—

Danzig, 150 kgs.

Ammonium Sulphate—

Dunkirk, 650 bgs.

Ghent, 1,822

Benzol—

Rotterdam, 25 cks.

Bleaching Powder—

Stettin, 191 cks.

Borax—

Gothenburg, 4 cks.

Stettin, 3

Caustic Soda—

Stettin, 9 dms.

Chemicals (otherwise undescribed)

Antwerp, 2 cks.

Amsterdam, 90 pkgs.

Bremen, 4

Copenhagen, 20 cks. 20 pkgs.

Christiania, 7 cks. 36

Drontheim, 20 kgs.

Danzig, 6 cks. 10 cks. 480 pkgs. 30 kgs.

Ghent, 7

Gothenburg, 5 110 pkgs.

Hamburg, 44 cks. 45 cks. 10 pkgs.

Konigsberg, 19 20

New York, 100

Rotterdam, 100 64 3 pkgs.

Stettin, 54 70

Coal Products (otherwise undes.)

Bremen, 50 cks.

Cottonseed Oil—

Hamburg, 445 c.

Rotterdam, 3,103

Stettin, 604

Creosote—

Hamburg, 150 cks.

Stettin, 50

Dyestuffs (otherwise undescribed)

Danzig, 27 lbs.

Rotterdam, 3 cks.

Guano—

New York, 201 t.

Linseed Oil—

Bombay, 21 c.

Copenhagen, 160

Christiania, 451

Christiansund, 59

Hamburg, 318

New York, 4

Rotterdam, 7

Stavanger, 21

Manure—

Copenhagen, 1,850 bgs.

Mineral White—

Antwerp, 100 bls.

Ochre—

Amsterdam, 4 cks.

Hamburg, 44

Rotterdam, 4

Painters' Colours—

Antwerp, 2 cks. 64 cks. 20 dms. 165 pkgs.

Amsterdam, 39

Bergen, 2

Boulogne, 27 pkgs.

Bremen, 16 cks.

Copenhagen, 3 cks. 15 6 10

Christiania, 6 60 14

Christiansund, 20 pkgs.

Dunkirk, 1 ck.

Drontheim, 1

Gothenburg, 10 pkgs.

Hamburg, 6 17 cks.

New York, 10 403

Rosen, 17

Rotterdam, 2 24

Stettin, 5

Pitch—

Antwerp, 412 t.

Dunkirk, 68

Size—

Flushing, 5 cks.

Hamburg, 2

Rotterdam, 1 ck.

Soap—

Christiania, 60 cks.

Drontheim, 10

Rotterdam, 1

Stettin, 10

Tar—

Amsterdam, 120 cks.

Bremen, 2

Copenhagen, 23

Danzig, 5

Hamburg, 9

Konigsberg, 1 ck.

Rotterdam, 3 cks.

Toluol—

Rotterdam, 48 cks.

Varnish—

Copenhagen, 10 cks.

Danzig, 1 ck.

Ghent, 1 ck.

Gothenburg, 7 cks.

Rotterdam, 3

Stettin, 3 cks.

GLASGOW.

Week ending March 30th.

Acetic Acid—

Lisbon, £26

Acid—

Rangoon, £49

Ammonia (Liquid)—

B. Ayres, 1,124 lbs. £174

Ammonium Sulphate—

Demerara, 63 t. 1¼ c. £759

Asbestos—

Demerara, £45

Coal Products—

Aniline, 11½ c. £20

Benzol, 26 pns. £231

Creosote Oil, 15 brls. £7.10s.

Pitch, 24 t. 4 c. £35

Portland, Me., 7 14 £3

Bombay, 5 5 £8

Christiania, 450 £320

Hamburg, 305 13 £90

Hungary, 100 11 £175

Amsterdam, 110 700

Boston, 110 11

Sable D'Olonne, 700

Tar

Bombay, £100

Rangoon, 55

Boston, 50

Tar Oil

Hungary, 23 t. 5¼ c. £320

Cottonseed Oil—

Hungary, 3 t. 18¼ c. £72

Rotterdam, 12 brls. 65

Dyestuffs—

Fustic Extract, 2 t. £85

Periland, Me., 2 t. £334

Logwood Extract, 174

Portland, Me., 5 t. 16¼ c. 36

Lisbon, 5 t. 16¼ c. 36

Madder

Portland, Me., 1 t. 7½ c. £49

Farina—

Antwerp, 4 t. 18¼ c. £55

Linseed Oil—

Bombay, 2 t. 17½ c. £81

Barbadoes, 3 8¼ 74

Demerara, 1 4½ 25

Magnesium Sulphate—

Christiania, 10 t. £32

Manure—

Trinidad, 195 t. 3 c. £1,345

Oleo Stearine—

Rotterdam, 1 t. 7½ c. £53

Paint—

Bombay, 4 t. 9¼ c. £308

Chili, 7 17 91

Peru, 302 302

Rangoon, 5 8 92

Barbadoes, 10 3½ 124

B. Ayres, 10 3½

Painters' Colours—

Rio de Janeiro, 2 t. 7¼ c. £28.10s.

Rotterdam, 3 bks. £60

Paraffin Wax—

Christiania, 5 t. £110

Genoa, 5 1¼ c. 152

Italy, 10 2½ 304

Hungary, 62 1,576

Antwerp, 2 55

Lisbon, 1 32

Boston, 6 ½ 142

Stettin, 7 18¼ 225

Potassium Bichromate—

Christiania, 12 cks. £192

Japan, 4 t. 19 c. 103

Genoa, 7 9½ 306

Italy, 15 1¼ 598

Antwerp, 12 9¼ 493

Rotterdam, 50 cks. 826

Stettin, 5 t. 196

Rosin Oil—

Christiania, 1 t. 6 c. £12

Sheep Dip—

Chili, 4 t. 12 c. £145

Soap—

Bombay, 2 t. 4 c. £35

Barbadoes, 5 7 90

Lisbon, 2 t. 18 58

Soda Salts—

Lisbon, 1 t. 14¼ c. £55

Sodium Bichromate—

Genoa, 7 t. 1¼ c. £230

Italy, 12 6¼ 404

Antwerp, 19 10½ 620

Sulphuric Acid—

Bombay, £100

Rangoon, 357

Tallow—

Rangoon, 1 t. 15 c. £64

Oporto, 1 38

Rotterdam, 4 10½ 190

TYNE.

Week ending March 25th.

Alkali—

Hamburg, 27 t. 11 c.

Rotterdam, 3 16

Amsterdam, 23 3

Venice, 10 16

Alum Cake—

Antwerp, 5 t. 3 c.

Odense, 11 6

Alumina Sulphate—

New York, 19 c.

Copenhagen, 2

Ammonia Alkali—

Barcelona, 13 t. 15 c.

Ammonia Ash—

Aarhus, 10 t.

Ammonium Sulphate—

Hamburg, 5 t.

Rotterdam, 101 7 c.

Ghent, 80 11

Antimony—

Rotterdam, 10 t.

Hamburg, 2 10 c.

New York, 30

Barcelona, 1 4

Arsenic—

Hamburg, 18 c.

Venice, 5 t. 4

Barcelona, 1 15

Barium Binoxide—

Dunkirk, 10 t. 1 c.

Barium Chloride—

New York, 1 t. 1 c.

Barium Hydrate—

Antwerp, 38 t. 8 c.

Barytes—

New York, 50 t. 6 c.

Bleaching Powder—

Rotterdam, 22 t. 14 c.

Hamburg, 56 14

Antwerp, 65 7

Odense, 3 16

Amsterdam, 7 15

New York, 274 19

Lisbon, 45 7

San Sebastian, 143 16

PRICES CURRENT.

WEDNESDAY, APRIL 9.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 11/-	
Glacial	"		50/-	
Arsenic S.G., 2000	"	0	14	6
Fluoric	per lb.	0	0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 3/4
Nitrous	"	0	0	1 3/4
Oxalic	nett	"	0	3
Phosphoric, 1750°	"	0	1	2 1/2
Picric	"	0	1	0
Sulphuric (fuming 50 %	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" " 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	6	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	2
Tartaric	"	0	0	11 1/2
Arsenic, white powdered	nett per ton	13	10	0
Alum (loose lump)	"	5	2	6
Alumina Sulphate (pure)	"	5	0	0
Aluminoferrie	"	2	10	0
Aluminium	per lb.	0	4	0
Ammonia, Anhydrous	"	0	1	1
" 880=28°	per lb.	0	0	2 1/2
" =24°	"	0	0	1 3/4
" Carbonate	nett	"	0	3 3/4
" Muriate	per ton	20	0	0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-	
" Nitrate	per ton	39	0	0
" Phosphate	per lb.	0	0	10 1/2
" Sulphate (grey) London	per ton	12	15	0
" (grey) Hull	"	12	16	3
Aniline Oil (pure)	per lb.	0	0	6 3/4
Aniline Salt	"	0	0	6 1/4
Antimony	per ton	45	10	0
" (tartar emetic)	per lb.	0	1	0
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	7	10	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	45/-	to 75/-	
Bleaching Powder, 35 %	nett	"	8	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-	
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	8
" 50/90	"	0	1	6
Carbolic Acid (crystallised 40°)	per lb.	0	0	7 1/2
" (crude 60°)	per gallon	0	2	5
Creosote (ordinary)	"	0	0	1
" (filtered for Lucigen light)	"	0	0	1 1/4
Crude Naphtha 30 % @ 120° C.	"	0	0	10
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	"	1	6	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	1
" Lucigen " and " Wells " Oils	"	0	0	1 1/4
Copper	per ton	45	3	9
" Sulphate	"	16	5	0
" Oxide (copper scales)	"	42	0	0
Glycerine (crude)	"	13	0	0
" (distilled S.G. 1250°)	"	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	11	5	0
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white ")	"	25	15	0
" brown ")	"	17	10	0
" Carbonat: (white lead) pure	"	20	0	0
" Nitrate	"	20	0	0

Lime, Acetate (brown)	per ton	2	1
" (grey)	"	10	1
Magnesium (ribbon and wire)	per ton	2	1
" Chloride (ex ship)	per ton	17	1
" Carbonate	per cwt.	1	1
" Hydrate	per ton	17	1
" Sulphate (Epsom Salts)	per ton	2	1
Manganese, Sulphate	"	17	1
" Borate	per cwt.	2	1
" Ore, 70 %	per ton	2	1
Methylated Spirit, 61° O.P.	per gallon	0	2
Naphtha (Wood), Solvent	"	0	2
" Miscible, 60° O.P.	"	0	2
Oils:—			
Cotton-seed	per ton	21	10
Linseed	"	21	10
Lubricating, Scotch, 890°—895°	"	7	1
Petroleum, Russian	per gallon	0	6
" American	"	0	6
Potassium (metal)	per oz.	0	1
" Bichromate	nett per lb.	0	0
" Carbonate, 90% (ex ship)	per ton	17	1
" Chlorate	per lb.	0	0
" Cyanide, 98%	"	0	2
" Hydrate (Caustic Potash) 80/85 %	per ton	21	10
" (Caustic Potash) 75/80 %	"	20	10
" (Caustic Potash) 70/75 %	"	20	10
" Nitrate (refined)	per cwt.	1	1
" Permanganate	per cwt.	3	1
" Prussiate Yellow	per lb.	0	0
" Sulphate, 90 % (ex ship)	per ton	9	1
" Muriate, 80 % (do.)	"	8	0
Silver (metal)	per oz.	0	1
" Nitrate	"	0	1
Sodium (metal)	per lb.	0	1
" Carb. (refined Soda-ash) 48 %	nett per ton	6	1
" (Caustic Soda-ash) 48 %	"	4	1
" (Carb. Soda-ash) 48 %	"	4	1
" (Carb. Soda-ash) 58 %	"	5	1
" (Soda Crystals)	"	3	1
" Acetate (ex-ship)	"	17	1
" Arseniate, 45 %	"	11	1
" Chlorate	per lb.	0	0
" Borate (Borax)	net, per ton	29	0
" Bichromate	per lb.	0	0
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	11	1
" (74 % Caustic Soda)	"	10	1
" (70 % Caustic Soda)	"	9	1
" (60 % Caustic Soda)	"	8	1
" (60 % Caustic Soda, cream) (f.o.b.)	"	8	1
" Bicarbonate	"	6	1
" Hyposulphite	"	7	1
" Manganate, 30%	"	16	0
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0	1
" Nitrite, 98 %	per ton	27	1
" Phosphate	"	15	0
" Prussiate	per lb.	0	0
" Silicate (glass)	per ton	5	1
" (liquid, 100° Tw.)	"	4	1
" Stannate, 40 %	per cwt.	5	1
" Sulphate (Salt-cake)	per ton	1	1
" (Glauber's Salts)	"	1	1
" Sulphide	"	8	1
" Sulphite	"	6	1
Strontium Hydrate, 100%	"	5	1
Sulphocyanide Ammonium, 95 %	per lb.	0	0
" Barium, 95 %	"	0	0
" Potassium	"	0	0
Sulphur (Flowers)	per ton	8	0
" (Roll Brimstone)	"	6	1
" Brimstone: Best Quality	"	4	1
Superphosphate of Lime (26 %)	"	2	1
Tallow	"	32	0
Tin (English Ingots)	"	97	0
" Crystals	per lb.	0	0
Zinc (Spelter)	per ton	17	1
" Chloride (solution, 96° Tw.)	"	5	1

THE CHEMICAL TRADE JOURNAL

AND
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308.

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Notices.

Communications for the *Chemical Trade Journal* should be sent by Cheques and Post Office Orders made payable to—

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Our Registered Telegraphic Address is—

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Communications for the Editor, if intended for insertion in the *Journal*, should reach the office not later than **Tuesday** of the week preceding.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited, and should condense their matter as much as possible, giving only the side only of the paper, and in all cases give their names, not necessarily for publication. Sketches should be sent on separate sheets.

Subscribers are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Advertisements.

Advertisements or Situations Vacant, Premises on Sale or To be Let, and Specific Articles for Sale by Private Contract are accepted in the *Chemical Trade Journal* at the following rates:—

Words and under..... 2s. 6d. per insertion
Each additional 10 words..... 6d.

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Words and under..... 1s. 6d. per insertion
Each additional 10 words..... 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements repaid, are charged at the Tariff rates which will be forwarded on request.

Advertisements intended for insertion in the current week's issue of the *Journal* should be sent to the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

A BLESSING IN DISGUISE.

THE town of bad smells and pills, St. Helens, has time over time been called hard names, or made the butt of sly witticisms; but every dog has its day, and at last St. Helens is in a position which will make many larger boroughs envious. The activity of the Mersey and Irwell Joint Committee is making the question of sewage disposal more important to local authorities every month, and in large boroughs the cost of chemicals is becoming a formidable item, apart from the expenses of establishment and maintenance. Further, where money is no object it nevertheless seems a difficult matter to learn how to treat the sewage so as to get a good effluent.

How lucky, then, must that borough be which has its sewage treated by natural means, upon a system of circumstances, with chemical precipitants and deodorizers, which are supplied with liberality, and delivered into the sewage itself, free of cost. Yet this, it would appear from the evidence recently laid before the Local Government Board Inspector, is the position of St. Helens. The chemical drainage and waste which finds its way into the sewers effects a precipitation of the solids dissolved in the sewage so effectual, that it only needs the agency of subsidence tanks to produce an effluent of excellent quality. It will be seen from the testimony of Mr. Carter Bell, which is to be found elsewhere in these columns, that the effluent is better than many which have been obtained during the experiments which have been made under his supervision at Salford. It seems almost a pity that the heterogeneous mixture, consisting of lime, hypochlorites, chloride of manganese, iron salts, and what not, which does such effective work for St. Helens, cannot be procured, and its effect tried on other sewages. Unfortunately, no two sewages hardly can be treated the same way; but, if they could, there might be such a run on St. Helens for its "sewage mixture" that there would not be enough left to treat its own sewage. For a precipitant that answered for five out of six sewages, without special compounding, would almost, like the pills which the town produces, be "worth a guinea a box."

After all that has been said about the horrors of chemical works, and the obnoxious smells which emanate from them, they yet seem to have one redeeming feature, for they help to lessen the rates of those who have to endure the smell of "chemic." Though such people pay through their noses, yet contrary to the usual purport of the saying, it saves their pockets, and after all chemical smells are not the only smells which render occupations dangerous. The nauseating odours arising from putrifying organic matter in manure works is beginning to attract public notice, and only last week a girl engaged in the apparently enticing occupation of making marmalade succumbed to blood poisoning contracted while sorting doubtful oranges. So perhaps there is hope for those who are subject to inorganic smells of a chemical nature and still exist.

THE CHICAGO WATER.

It will doubtless be satisfactory to those who intend visiting Chicago to learn that there is after all little need for apprehension regarding the water supply of that place. It is, however, an encouraging instance of sanitary advance, for such an inquiry as has been instituted by the special commission, to be made. Generally the alarming impurity of the water supply is discovered after an epidemic has broken out, but in this case the matter has been efficiently gone into in good time.

The necessity for so doing was, however, imperative, as if the Chicago Exhibition comes up to the present expectations, numbers of people of every nationality will be crowded into Chicago, and consequently the strain upon the sanitary arrangements will be exceptionally great. Had, therefore, the water been bad, and an epidemic broken out, there would have been a general exodus from the stricken quarter to almost every corner of the globe. Fortunately this has been foreseen, and though the river water is highly objectionable, the worst of the sources of supply, namely, Lake Michigan, is up to the average of lake waters when filtered. The total solids and free ammonia are good, and the absorbed oxygen is very low. The foolishness of putting blocks of ice obtained from bad water in the supply has been pointed out, and if this is borne in mind, and the simple precaution of boiling the drinking water observed, there is not much likelihood of serious complications arising out of the water supply. Looking further ahead, however, there is a timely hint in the statement that although the pollution from the city refuse thrown into the lake is not at present apparent, still in time there is ostensible danger of one of the chief water supplies of the city becoming seriously contaminated.

THE ANTI-ADVERTISING MOVEMENT.

There was some talk, a few months back, of taxing advertisements, and now a society has been formed for checking the abuses of public advertising. The intention of the society is doubtless to foster refinement and, though there may be a few instances where advertising has been carried to extremes, still they are, we think, the exception and not the rule. Advertisements of genuine artistic merit are to-day plentiful, and even the ordinary run of "ads." are a great advance on the ancient trade announcements, which were got up in a funereal style.

It was surely more objectionable to see what was, to all appearances, a reproduction of a mural tablet, bearing an inscription relating to somebody's hair wash, than to see reproductions of genuine works of art used for identifying certain kinds of goods. Moreover, numbers of such advertisements, apart from being artistic, are truly humorous.

If however, as is suggested, local authorities are to have control over the advertisements which are to be displayed, who is to decide what soaps, pills, cocoas, daily papers, theatres, insurance companies, mustards, watches, tobaccos, condensed milks, to say nothing of the hundred and one medicines, are advertised in an inoffensive way? Again, if members of this society are to use their discretion, and refrain from patronising goods which are too blatantly advertised, it becomes a matter of taste, and there is no accounting for some people's taste.

These are one or two little points which it would be interesting to have cleared up before considering the proposal to impose a duty on all exposed advertisements, which idea is being mooted by the same society.

OURSELVES.

It may seem rather strange to put ourselves under heading of a Current Topic, and certainly our editorial are not in a perpetual state of burning and itching; but perhaps we may be pardoned for the anomaly, in consideration of the fact that this place is the most suitable for our purpose. We merely wish, on behalf of those of our readers who may be interested, to briefly notify the addition which has been made this week to our already comprehensive Market Reports. Our new weekly report of the oil and trade of Hull has been procured specially for the *Journal* after considerable trouble, through direct sources, and we confidently anticipate, consequently constitute a useful reliable record of the position of the oil and colour trade in the Hull district.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

THE usual monthly meeting of this section was held on Friday inst., at the Victoria Hotel, Manchester, at 7 p.m., Ivan Stein, Esq., presiding. The first business of the evening was the election of five members to serve on the committee. Three of the members were re-elected, the remaining two, Messrs. J. Angell Grossmann, being replaced by Messrs. Dreyfus and Perkin.

The chairman then opened the postponed discussion on Bailey's paper on "Town Smoke," and briefly recapitulated the methods which had been suggested from time to time for the use of town smoke and the prevention of fogs. In regard to the use of gas, he doubted the likelihood of the Corporation reducing price sufficiently, especially as the value of the bye-products was rising so rapidly. Mr. Grimshaw spoke warmly in favour of the use of gas for heating. The question, he said, had been considered some years since both by himself and Mr. George E. Davis. He did not see the greater convenience of gas, especially for offices, &c., necessary, however, if gas was to be more generally used, that it be purer in regard to sulphur. At present Manchester was in an invidious position in this matter, as there were some 40 grains of sulphur in the gas, while in London it was as low as 16 grains per cubic foot. Dr. Bowman also spoke in favour of the use of gas, suggested the manufacture of a cheaper gas for heating purposes and extending the use of the electric light as an illuminant. Carpenter drew attention to the suitability of Dowson gas for warehouses and places of a similar nature, where it was found cheaper than ordinary gas. Mr. Terry wished to correct an error but prevalent impression, which existed largely in the mind of the medical faculty, that there was money to be made from the use of household smoke. This, however, he stated was not the case. The analysis had shown that there was a great difference in the composition of manufacturing and household smoke.

Dr. Bailey, in replying, said as a rule the very people who most outcry about the smoke nuisance, generally knew nothing about the proper way of burning fuel. It never occurred to them that while blaming the manufacturer, they were themselves at the evil by the lamentable ignorance they displayed in their own grates. It was a fact that a household grate tended in this manner could be made to give as good results as a works where the firing was done on scientific principles. Taking the amount of coal burnt in works and households, it had been found in Leeds that about 30 per cent. of the smoke was due to the domestic alone. As regards the remedy for the evil, he inclined to the use of gas. It was important to remember that in a matter of partial relief meant a great deal. If electric light was substituted for gas, and a cheap gas suitable only for heating, &c., was supplied to the square mile of the city, the improvement in the state of the atmosphere would doubtless be great. He further suggested that a gas, candle power, should be supplied, and incandescent burners used for the consumption of the same. The burners could be checked and attended to, if necessary, in the same way as the meters. The burners inspected, and the increased trouble would be small. Of course, gas would have to be much purer than it was at present. He made an experiment with three burners burning Manchester gas in a room of normal size, and the results of the analysis were as follows: He suggested that next session, he set apart to consider some of the remedies for household smoke, since such remedies need to be discussed, by those who have

combustion of fuel, and the majority of the members of the had practical experience in the matter.

son, F.I.C., then read his paper on "The nature of soda se shores of Mexican lakes." The deposit is a mixture of ate of soda and sodium sulphate. He drew attention ity of concentrating these deposits before transporting also making the product somewhere about the same present the value of the deposits varied enormously. was peculiar, as the waters of the lakes on the shores of osits are found, are not very rich in saline constituents. are bought for soap boiling, and considering the variation tage of alkali in the deposits, it is remarkable that the oduce as good a soap as they do. The paper was th lantern views, which gave a good idea of the nature of i which the deposits are found. The methods of utilising was very primitive, like the people, one distinguished ing pointed out by Mr. Thomson who was a lawyer, soap o proprietor of the local coach. After the usual votes of eting terminated. There was an attendance of about 30.

SCOTTISH SECTION.

y, April 4, the annual general meeting of this section was rooms of the society, Glasgow, the chairman (Mr. C. A. siding. The attendance was about the smallest ever even in the case of ordinary meetings, the cause, no the absence of members from town owing to the spring r. J. S. Muir, hon. secretary and treasurer, presented his eby it appeared that the financial year began with a of 240. Owing to deaths, withdrawals, and removals, ese had lapsed, and as only 11 new members had been the same period, the list now contained 236 names only, a falling off of four, otherwise the year had been a busy il one. The Chairman deemed the report a favourable ote. A feature of the session had been the action of the gard to the flash point of burning mineral oil, a circum- had drawn largely on the extra exertions of the hon. e was glad to say that they had made good progress. the committee had been already printed, and would soon members. It devolved on the central administration to icate what further action was advisable, but probably the of some of the Chambers of Commerce would be enlisted movement. Provision was then made for the vacancies l of the session, the meeting endorsing the recommenda- committee as previously made, whereby Mr. C. A. Fawsitt chairman; Prof. Mills vice-chairman; and Mr. J. S. ecretary and treasurer. Messrs. J. Clark, G. G. Hender- Macadam, and D. R. Stuart were elected new members . Dr. W. Zinkeisen, of Glasgow, then read a paper me Points in the Manufacture of Mineral Waters," aided old and new manufacturing plant, which enabled him to process from its initiation to the final stage of bottling. that one system was that of continued bottling, used e output was wanted; but the older or discontinuing still in use where a really first-class article was needed. f Dr. Zinkeisen's lecture (which was listened to with an e interest by the handful of members present) was that, here were mineral waters* and mineral waters, no matter ally or artificially produced. The most sophisticated ere put on the market, and so-called soda-water was fre- ly innocent of soda. Still, waters artificially made, y manufacturers of skill and conscience, were better even al waters, and would keep sound a very long time. The he close, gave voice to the general interest of the listeners, nted the lecturer on the high and valuable qualities of ee. This was endorsed by Professor Mills, Dr. Clark n answer to various queries put by these speakers, Dr. ed that, probably, mineral waters, even when properly ould be hurtful, if taken in large doses and habitually, e knew, they were not so used, and it was well known the waters swallowed went down with corrective com- for example. A water had at one time been made from that would certainly be innocuous, but consumers did ke to it, and it was not now on the market. The cordial meeting were awarded to Dr. Zinkeisen for his paper, as Clark, who followed with some remarks on the "Estima- um in Steel."

AR.—The following is a patented method of preparing The ingredients, which are as follows, are mixed together he ordinary way :—Water, 20 parts by weight; paraffin, fat or vegetable oil, 4; caustic potash, 2. If desirable, caustic potash, and water may be boiled together in the and the paraffin or oil added afterwards,

THE ST. HELENS WATER-SOFTENING WORKS.

THESE works, which are situated by the Brownedge Reservoir at Thatto Heath, were opened by the Mayor of St. Helens on Thursday, 6th inst. The water in certain districts of the borough of St. Helens is very hard, and also contains a small amount of iron salts. (C. T. J., p. 132, No. 301.) It was therefore decided to soften the water. After several processes had been inspected, the Atkins-Clark process, which has been working at Southampton, was adopted. The principle of this process is briefly as follows :—When ordinary burnt lime or calcium oxide is added to water containing bi-carbonates of calcium and magnesium two chemical reactions take place. Firstly, the excess carbonic acid gas necessary to keep the lime or magnesia in solution as bi-carbonate enters into combination with the calcium oxide forming insoluble carbonate of lime. Secondly, the bi-carbonate of lime originally contained in the water, being no longer kept in solution by the free carbonic acid gas, is precipitated in a like manner, the result being pure softened water. The simple Dr. Clark system, which is in operation in many towns in England, consists in running the hard water after admixture with lime into large settling tanks, where the carbonate of lime is allowed to precipitate, and the clear softened water runs off at intervals. The system adopted by the St. Helens Water Committee is, however, a modification of Dr. Clark's process, inasmuch as although the water after mixing is run through a tank of large dimensions, where partial precipitation takes place, it is finally treated by mechanical filtration.

Thanks to the kindness of Mr. Donald M. F. Gaskin, the water engineer, we were enabled to view the plant at Thatto Heath prior to the formal opening. The buildings in which the filters, pumps, etc., are situated, are very compact, and cover an area of 966 square yards. Architecturally, they are unpretentious, but neat and of substantial build, the brickwork facade being relieved with blue Staffordshire bricks and red sandstone. The principal entrance is from the top of the reservoir, across an arched and parapeted gangway leading into the engine-house. This room, 25 feet by 19 feet, contains the motive power for working the whole of the plant and machinery. To the right hand stands the engine, which is of the single cylinder high-pressure horizontal type, of the most modern and approved design, indicating up to 25-horse power, with a flywheel and driving pulley each 5 feet in diameter, and to the left there is a double-acting ram pump, driven from the overhead shafting, and working against a pressure of from 60 lbs. to 70 lbs., supplying the high-pressure water necessary for cleaning the filters, as also for agitating the cream of lime. Here also is situated a steam Cameron pump, capable of delivering softened water to the lime tanks (for the preparation of a saturated solution of calcium hydrate from the milk of lime) at the rate of from 170 to 200 gallons per minute. Steam is generated in two double-flued Lancashire boilers, 20 feet long by 6 feet diameter. The flues are 2 feet 3 inches diameter, each provided with four Galloway tubes. The boilers, which will work alternately, are fed with softened water from a small Worthington steam pump.

Taking the buildings in their working order, you pass into the lime storehouse. Here is situated the lime-slacking mill, which is of the same pattern as those employed at the Gerard's Bridge Works of the United Alkali Company (formerly belonging to Colonel Gamble). It is a cast-iron open-topped cylinder, 6 feet diameter and 3 feet 6 inches high. Internally fitted to a revolving vertical shaft is a circular screening chamber, 5 feet 2 inches diameter and 1 foot 6 inches in depth, formed of $\frac{3}{4}$ -inch bars, with $\frac{3}{8}$ -inch spaces to arrest any foreign matter while slacking the limestone. It is provided with stirring arms, baffle-plates, etc.

The lime, now in the form of cream of lime, is again passed through a small-meshed sieve, and falls into a storage tank 22 feet by 15 feet. This tank is in the lime cylinder-house, the dimensions of which are 45 feet by 25 feet. A small single-acting ram pump delivers the cream of lime into the cylinders at required intervals at the rate of 40 gallons per minute. These cylinders, three in number, are open-topped, and constructed of mild steel, 9 feet in diameter and 14 feet deep, finished at their lower ends in the form of a truncated cone. After they are charged with lime, softened water from overhead tanks is led in at their base, and flowing upwards through the cream of lime, keeps up a gentle agitation, and is drawn off at the top through a series of collecting pipes as a clear saturated solution of calcium hydrate. It then flows by gravitation through a line of pipes into the "mixer," where it is incorporated with the hard water pumped up the Knowsley, Kirkby, and Sutton mains.

The iron mixing tank, supported on brick piers and girders, is 16 ft. long 4 ft. deep, and tapers from 8 ft. to 6 ft. in width. Baffle-plates are fixed across this, alternately at the bottom and 18 in. above the same, so that the mixture has an upward and downward flow in its onward course, thus being thoroughly churned or mixed. Now in a turbid and milky state, it flows over a weir 18 ft. in length into a tank, where a portion of the matter in suspension is deposited,

The softening tank, which is lined with blue brick in cement, and holds about an hour and a half's supply, is 76 ft. 9 ins. long, 45 ft. broad, with a minimum depth of seven feet. It has a weir wall running its full length on the filter-house side, and also a division wall down the centre of the tank to incline 16 ft. The water thus has a travel of double the tank's length before passing through the filters, where the remaining insoluble carbonate of lime is arrested. From the filters the pure, softened, and filtered water flows through a trough under the filter-house floor, thence through a line of rectangular pipes carried on brick arches to the storage reservoir, from whence it is distributed by gravitation through three trunk mains for the town's consumption.

The filters, sixteen in number, are fixed side by side down the length of the filter-house, sufficient space being left for an additional four when required. Each consists of a cast-iron tank 7 ft. 6 in. long, 6 ft. deep, and 3 ft. 7½ ins. wide, semi-circular at their base, having a fall towards a waste pipe in the centre. A turned cast-iron hollow fluted and slotted shaft is mounted therein, which supports twenty galvanised cast-iron discs 3 ft. in diameter and 2 ins. apart, having a waterway into the hollow shaft, which can be revolved by gearing for the purpose of cleaning, etc., when desired. The discs are covered with perforated zinc, which forms a support for the filtering medium or specially woven twilled cloth. The cloth is stretched and held in position by eight iron rings, clipping the edges of the discs. During use the discs remain stationary. Milky water is admitted from the softening tank through flap valves from the front of the filter, and the process of filtering proceeds from the head of water in the tank. The clarified water passes from the hollow shaft through a trunnion joint in the front of the filter and the regulating valve, and so on to the trough already described.

Provision is made for cleansing the discs, filter tanks, lime cylinders, washout channels, etc., and running the deposit into pits away from the building. In addition to the removal of the lime, the oxide of iron which exists in suspension as a red deposit in the Knowsley water is removed. The waters from Collins Green, Knowsley and Kirkby will be softened by this process, while the softer waters from Whiston and Eccleston Hill will be sent direct to the town.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday last at the offices of the Committee, Mosley-street, Manchester, Mr. Alderman Thompson in the chair.

At the last meeting of the Committee a resolution was passed appointing Sir Henry Roscoe chemical adviser to the Committee at a salary of £700 for one year. Mr. Alderman Noton, Mayor of Oldham, had given notice of his intention at the present meeting to move a resolution rescinding the appointment.

A letter was read by the Clerk (Mr. F. C. Hulton) from the Chairman of the Committee (Sir J. Hibbert), expressing the hope that the proposal to rescind the motion passed at the March meeting would not be persevered in. The Clerk also read the following report of the Chemical Sub-committee:—"The Chemical Sub-committee beg to report that Sir Henry Roscoe on the 9th March last accepted the appointment of chemical adviser to the Joint Committee upon the terms of the resolution passed at the last meeting. Sir Henry at once commenced to carry out the inspection of certain works, and the Sub-committee have asked him to meet them on the 17th of this month, in order that the necessary details of the proposed line of action may then be discussed and settled."

Mr. C. H. Nevill said that even if the resolution were rescinded, the appointment, having been entered upon, held good for twelve months.

Mr. Alderman Noton, in moving that the resolution rescinding the appointment (which was stated upon the authority of the Clerk to be legally in order), said it was, of course, undeniable that Sir Henry Roscoe was one of the first chemists of the day. His objection to the appointment was simply that it was made in a hasty and irregular way. He did not think it was fair that such an important resolution should have been brought forward without special notice. He was further of opinion that the claims of other chemists should have been given some consideration. If some stand such as he now took had not been made against the appointment, it might have come to be regarded not as temporary, but as permanent. He held that it was not their province to teach manufacturers how to abate pollution. What the Committee had to do was to tell them to stop it, and to leave them to find the means.

Mr. A. F. Bentley, in seconding the resolution, protested against the illegal expenditure of money by the committee. If manufacturers were given this advantage, so also, he thought, should sanitary authorities.

Dr. Hewitt entered a strong protest against the statement that the matter had been rushed. Sir Henry Roscoe, with his long experience and great knowledge, would be able to show the committee how best to act with determination and hope of success. The engineer of the committee distinctly stated that he wanted advice of a chemical character. There was no intention that the appointment should be permanent, for it would be remembered it had been limited to one year. They believed that in a short time they would have the necessary information to enable their engineer and inspectors to insist on the carrying out of the Acts.

Mr. Haslam also spoke against the resolution.

The Chairman said the sum of £700. for twelve months might seem large, but they must remember that sometimes a low estimate turned out to be a very dear one, and a high estimate might be the cheapest in the end. The opinion of Sir Henry Roscoe would have great effect on all who came under their authority. They had to deal with great interests—with dyers and bleachers, and paper makers and others,—and those concerned would readily bow to the opinion of a man like Sir Henry, whom they knew to be perfectly competent and fair. (Hear, hear.)

The resolution of Mr. Alderman Noton was defeated by 15 votes to 3.

The names of the voters were asked for by Mr. Bentley, and they were taken in accordance with his request.

The report of the Chief Inspector (Mr. R. A. Tatton) was then presented, and ran as follows:—"The extension of time granted to the authorities having expired in the cases of Mossley, Macclesfield, Ramsbottom, Stalybridge, Dukinfield, Droylsden, Little Lever, Aspull, Mottram, Hollingworth, Gorton, Failsworth, Bollington, Bacup, and Whitworth, it will be for your Committee to consider whether a further extension shall be granted. I beg to report on the following cases:—

Mossley Corporation.—Population, 14,162; rateable value, £57,855. The Local Government Board inquiry into the application from the Corporation for sanction to borrow £19,000 for sewage works was held on March 21.

Macclesfield Corporation.—Population, 36,000; rateable value, £80,748. 7s. 6d. An inquiry has been held into an application for a provisional order to acquire land compulsorily under the Lands Clauses Acts, but the Local Government Board has not yet given its decision in the matter. The scheme is intended to be on the broad irrigation system, and the area of land required is 196 acres. This will give 183 persons to the acre.

Ramsbottom Local Board.—Population, 16,700; rateable value, £68,318. The plans for the sewage works will be ready for submitting to the Local Government Board within the next two weeks.

Stalybridge Corporation and Dukinfield Local Board.—Population of Stalybridge, 27,000; rateable value of Stalybridge, £96,608. Population of Dukinfield, 17,408; rateable value of Dukinfield, £59,945. 4s. The bills promoted by the two authorities have passed the second reading in the House of Commons.

Droylsden Local Board.—Population, 9,500; rateable value, £30,168. The scheme for sewage works has been submitted to the Local Government Board, but no date has yet been fixed for the inquiry.

Little Lever Local Board.—Population, 5,500; rateable value, £15,956. The sewage scheme for this district is before the Local Government Board, but the inquiry has not been held yet.

Aspull Local Board.—Population, 9,000; rateable value, £24,224. 5s. The negotiations with the Wigan Corporation for the admission of the Aspull sewage into their sewers have not yet been completed in consequence of sanction not having as yet been obtained to their application for a loan.

Mottram and Hollingworth Local Boards.—Population of Mottram, 3,270; rateable value of Mottram, £10,111. Population of Hollingworth, 2,900. The plans for these districts are in progress.

Gorton Local Board.—Population, 15,500; rateable value, £43,126. The Local Government Board inquiry into an application to borrow £30,000. for sewage purposes is to be held on the 15th inst.

Failsworth Local Board.—Population, 10,800; rateable value, £38,882. The Committee granted this authority two months' extension of time in February last to enable them to purchase the extra area of land required by the Local Government Board.

Whitworth Local Board.—Population, 9,800; rateable value, £38,475. An agreement has been come to for the purchase of 13 acres of land at Tonacliffe, on part of which the intended sewage works will be constructed. The authority has not yet finally decided what system to adopt.

There are a considerable number of authorities with sewage schemes now before or shortly to be presented to the Local Government Board, and I would suggest to your Committee the advisability of sending a list of them, with a population of each, to the Board, with a request that the Board should direct its attention in the first instance to those authorities with the largest population. The works required for some of the larger towns will be of considerable magnitude, and it is of

importance that they should be begun as soon as possible in order to get the advantage of the summer months.

A sub-inspector has been appointed under Dr. Barwise to take charge of the rivers in Derbyshire which flow into the Mersey, and arrangements are being made for one of your sub-inspectors to go over the district with him and give him all information. No action has, I understand, yet been taken against any authority on the streams.

On the report of the Consulting Sub-Committee the Mossley Corporation were granted an extension of time, in regard to their scheme, of three months, Macclesfield Corporation three months, Ramsbottom one month, Stalybridge and Dukinfield one month, and Droylsden, Little Lever, Aspull, Mottram, Hollingworth, and Gorton each three months.

In regard to Failsworth the Sub-committee recommended that immediate action be taken, and the Committee agreed. The authority had been told by the Local Government Board to get more land. The action of the authority had been to appoint a committee only.

The extra month was granted to Stalybridge and Dukinfield because, though they had proceeded by the way of a Bill to save time, the Local Government Board objected, and stated that they ought to have proceeded by the way of a provisional order.

Mr. Neville, who, along with the Chief Inspector, was deputed at the last meeting to go to Bollington, reported that apparently there was no sign of sewage in the stream. They inspected the worst sewer, which seemed to contain water of a soap-sud nature rather than sewage. The manufacturing pollution also was small, though the aggregation of the small quantities was likely to tell. He advised that Bollington be given time to construct a smaller scheme than they anticipated at present.

Mr. Killick drew attention to the unsatisfactory progress Bacup was making, and said the Committee was like a shuttlecock tossed between the battledores of Bacup and the Joint Sewerage Board of Rawtenstall and Haslingden. The position of affairs had been the same in April last year. He moved that proceedings be taken against Bacup. Dr. Walsley seconded. Representations in favour of Bacup were made by Messrs. Greenwood and Disley, and it was also pointed out that as the notices of Rawtenstall and Bacup expired on different dates they could not be dealt with jointly. Eventually Mr. Killick withdrew his motion, and it was decided to grant an extension of one month, at the expiration of which proceedings would be taken against all three of the authorities. Mr. Neville reported that the clause in the Salford Bill which had been petitioned against had been withdrawn.

THE ANALYSIS OF OCHRES.

By PAUL HUBERT.

THE important points to be ascertained about these substances are the amounts of iron, silica, and clay, and the colouring power. After drying the crude material it is sieved through a No. 50 mesh and dried in a stove at 100°, where any remaining moisture is drawn off completely. The material thus prepared is then employed for the various determinations.

Peroxide of Iron. One gramme of the powdered substance is boiled in a flask for three or four minutes with 20 cbc. of hydrochloric acid, the mouth of the flask being provided with a cork and narrow tube to prevent loss by projection. Water is then added, the whole again boiled and made up to 200 cbc.

Forty cbc. of the filtered liquid are withdrawn, treated with zinc for four hours in a narrow-mouthed vessel, the zinc removed, and the liquid acidified with sulphuric acid and titrated with potassium permanganate solution, containing 0.4 grms of available oxygen per litre. If a represents the number of cbc. used, then $2a$ gives the percentage of Fe_2O_3 in the ochre.

Silica. The silica in the quartzose state can only be determined by mechanical methods. Five grams. of the dried and powdered earth are weighed in a porcelain basin, a little water added, and the two well mixed together by the aid of the finger. After allowing to stand for half a minute, the liquid is decanted into a flask capable of holding 200 cbc., and is afterwards used for determining the colouring power. The same operation is repeated five or six times until the flask is full. Since the ferruginous clay adheres very strongly to the sand, it is important to rub the latter well against the sides of the basin. The residue is almost colourless, and is thrown on to a filter, dried, removed, and weighed. When it is not desired to determine the colouring power, the operation is still more simple. Thirty grams of the ochre are boiled with water in order to divide the mass. After cooling, the whole is introduced into a flask and washed by means of a current of water introduced through a tube reaching nearly to the bottom of the vessel, the clay being thus entirely removed.

Clay.—The difference between the weight of silica and that of the original substance gives the clay contained in 5 grams., and this multiplied by 20 gives of course the percentage.

Colouring power.—M. Pagnoul recommends the following method: An ordinary red ochre and a yellow one are taken as standards, 5 centigrammes of each being sealed up in two glass tubes, together with 50 cbc. of water. In order to make the determination, some volume, x , of the liquid obtained by washing the sand is removed, after well shaking, and placed in a graduated tube of the same diameter as the other two, and water added until the opacity is the same as in the typical tubes, a point which can be determined with some precision. If v is now the volume to which the liquid has been diluted, then the colouring power is given in percentage of that of the typical specimen by the expression $100 V (25 v = 4 V) x$. This valuation gives a sufficiently accurate idea of the covering power of the earth mixed with oil, since in both cases the opacity depends upon the intensity of the colouration and the size of the particles. The colouring power thus obtained is that of the earth itself. (Pagnoul.) Knowing the weight of the sand and of the clay present, the colouring power of the latter alone can be calculated.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending March 25th, 1893, was not so good as usual. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed three deficiencies in illuminating power, two against the South Metropolitan Gas Co. and one against the Gas-Light and Coke Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.32	13.4	0.25	Nil.
South Metropolitan Gas Co.	6	16.31	10.58	0.40	Nil.
Commercial Gas Co. ..	2	16.25	7.35	0.05	Nil.

The supply during the week ending April 1st, 1893, was very good, being without a single instance of deficient illuminating power. The results calculated as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.38	11.90	0.33	Nil.
South Metropolitan Gas Co.	6	16.43	10.73	0.45	Nil.
Commercial Gas Co. ..	2	16.60	7.70	0.05	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

THE JAVA INDIGO TRADE.

IN speaking of the Indigo crop at Java, Messrs. Bunge & Co., Rotterdam, state that although the crop is small it is of good quality. The firstlings of the crop arrived at Hamburg early in this year, but the article is likely to be scarce during the first part of the year, as many manufacturers who had begun to cut the plants had to stop on account of their not being juicy enough.

The following are the figures for the crops of the last three years:—

Production in 1889 was	..	..	722 tons.
„ „ 1890 „	..	..	503 „
„ „ 1891 „	..	..	711 „
„ „ 1892 was about	..	..	630 „

The prospects of trade were pretty good judging, from the position indicated by the statistics of stocks, &c., at Hamburg. For at the end of 1892 the arrivals were about normal, though tending towards a decrease if anything, the deliveries were larger than they had been for the past four years, and the stocks were lower than they had been during the three years previous, being about one seventh of the total stocks in 1891.

DISPOSAL OF SEWAGE AT ST. HELENS.

A LOCAL Government Board inquiry was held at St. Helens on March 31st, into the proposed scheme of treating the sewage. As has been stated before (*C. T. J.* No. 301, p. 127) the chemicals which find their way into the sewers at St. Helens are sufficient in themselves to precipitate the solid constituents of the sewage and a process of subsidence is all that is necessary to obtain a good effluent. The Town Clerk recapitulated at some length the position of St. Helens in this matter, and stated that as high as 90% of purification had been effected. Dr. Franklyn had objected to the presence of suspended matters, and argued that though the effluent obtained at the outfall works was thoroughly disinfected, yet on dilution further down the stream putrefaction would again arise.

Dr. Robertson, the medical officer of health, drew attention to the chemicals which entered the brook, many of which were powerful deodorisers and oxydizers, consisting as they did of chloride of lime and manganese chloride; while the iron salts which were present took up free sulphuretted hydrogen. The following analyses were presented showing the difference between the raw sewage and the effluent they obtained by subsidence. *Crude Sewage*: Total solids in grains per gallon, 318.02; solids in suspension, 47.04; solids in solution, 271.02; albuminoid ammonia, 2.056; chlorine, 87.4; mineral matter in suspension, 37.25; loss on ignition of suspended matter, probably all organic matter, 9.79. *Analysis of effluent*: Total solids in grains per gallon, 265.73; solids in suspension, 3.53; solids in solution, 562.2; solids removed by subsidence, 43.51; solids in suspension removed by subsidence, 92.5 per cent; albuminoid ammonia, .782 grains; organic matter removed by subsidence, 62 per cent; chlorine, 86.6 grains. Bacteriological results: Organisms counted on plate cultivation in the sewage without any chemical drainage, 89,000 to 90,000 per cubic centimetre, and sometimes too many to count; organisms counted on plate cultivations of brook water, after all sewage had entered, 0 to 90 per cubic centimetre. Proceeding, Dr. Robertson said that the average of the twenty-five tests showed that 92.5 per cent. of the solid matters to which Dr. Franklyn objected could be removed.

Mr. J. Carter Bell, public analyst for Salford and elsewhere, said he had been conducting large experiments for the Salford Corporation at the Salford Sewage Works with most of the well-known processes for dealing with sewage, and in connection with these experiments he had acquainted himself with the outfall systems of various other towns. On March 17th he inspected the brook. He took a sample of the water before any sewage came into it, and then went along the banks for three or four miles, but he could not trace any difference by reason of the sewage entering into it. He also inspected the experimental tanks, and took samples, and he should have thought it was really purified sewage. It was purified to the extent of something like eighty per cent. That would be considered first class, few of the processes reaching that purification. The effluent contained a considerable quantity of salts of iron, which had a very considerable purifying effect on the sewage. At the present time they were using in Salford the salts of iron on some ten million gallons of sewage, and they found a large quantity of solid matter was precipitated. In using that basic sulphate of iron they found they got a most efficient purification. The salts of iron prevented disinfection, and had a most beneficial effect on the brook. He had considered what Dr. Franklyn had said as to the re-putrefaction of the sewage, and he could not think it was possible. He would not have much fear about turning raw sewage into such a brook as that. The quantity of chemicals they had in the brook was far in excess of what was required for the process of purification. If he had not known the nature of the stream he would have feared it. The process now going on in the sewer was equivalent to the constant use of disinfectants. He considered that every chemical manufacturer in St. Helens was really helping to purify the sewage before it reached the outfall.

The Inspector—The combination of chemicals in the sewage is harmless?

Mr. Carter Bell said that when he found that manufacturers were sending anything into the sewage, which was beneficial, he told them they were really doing good, and so at the present time he would let them go on on draining any solution of bleach or anything like that.

The Town Clerk—What is the quantity of suspended matter in the effluent?

Mr. Carter Bell said it was only 4 parts in 100,000, and that was only oxide of iron, which would keep down the volume of sulphuretted hydrogen.

The Town Clerk—In the sewers have not we the very chemicals, in large proportions, which are used in the ordinary chemical processes for the purpose of purification?

Mr. Carter Bell—Yes.

The Town Clerk—Have you found in your experiments at Salford, by using any of the other processes, you can get as satisfactory an effluent as we can get by subsidence only?

Mr. Carter Bell—We have not got so good, and I should be pleased if we could get, as good as you have here. I have known brook for twenty years.

At the conclusion of the inquiry, which also had reference to Works contracts, the Tar Distillation Works, and other matters, the Town Clerk asked the Inspector to press forward the sewage works as soon as possible. The Inspector said he would do his best, depending not so much upon anything he said, as upon what Dr. Franklyn would say of the result of his analysis. He thought the evidence that had been given about the action of those chemicals on the sewage, and the precipitation which seemed to take place would get a favourable report very shortly.

Reports of Companies.

THE THARSIS SULPHUR AND COPPER CO., LIMITED.

The report of the directors of this company shows that the net for the year ended December 31, 1892, together with the balance £19,284, brought forward, amounted to £206,378. The directors recommend a dividend of 6s. per share, equal to 15 per cent., on the whole to be payable on May 10, leaving £18,877. to be carried forward. The dividend will be paid to holders of nominative shares by dividend warrants, payable at the bank of Scotland, 140, London, and to holders of coupons of shares to bearer at the office of the company in Glasgow. Five days are required for examination of the coupons.

WOODHOUSE AND RAWSON UNITED, LIMITED.

A meeting of the shareholders of Woodhouse and Rawson United, Limited, of London, Manchester, Kidsgrove, and of other places throughout the country, was held on Monday, April 12, 1893, at 11, Old Broad Street, London. Sir Rawson Rawson presided.

The chairman stated that he and Mr. Pope had felt it their duty to call a meeting of the shareholders, to call this meeting a general meeting was held, at which it was decided that a voluntary liquidation should take place. The directors thought that was the best possible arrangement, but petitions had been presented by some creditors for a compulsory liquidation. He and Mr. Pope thought that scheme would benefit anybody, and trusted that those who would vote in favour of a voluntary liquidation under the supervision of the Court.

Mr. Pope, in a very long speech, said that if there were a compulsory liquidation, and the company were re-constructed with better management, they would get the full value of the assets; but, under a sale by compulsory liquidation, the assets would not realise as much, and the shareholders would get nothing. The industrial revolution had not been so successful as they could have wished. There was to be an indication that the directors were going to have some over this business, but it must not be supposed that he was allowing himself to be charged with issuing a fraudulent prospectus, or resisting it, until he had not a halfpenny left in the world, and would fight every individual case to the last, and no one should ever do anything fraudulent in his life. He hoped the shareholders would forgive him for feeling a little strong on the matter, but he made up his mind not to be frightened by any action of the shareholders. In conclusion, Mr. Pope submitted a resolution to the effect, that the company be wound up voluntarily and not compulsorily, and that the company be re-constructed.

Mr. Dodson moved the resolution, which was seconded by Mr. Ackworth.

Mr. Stutchbery (general manager) said that there was no great scare, so far as the industrial business was concerned, fortunately in the past there had been a lot of miserable men with the company, who were simply parasites. They received sums of money for doing nothing. These had been got rid of, and business was improving. They had splendid men at Manchester and splendid men at Kidsgrove. The company had executed so much work at St. Helens, for which they had received praise from all parts of the country. He had no doubt that, with good management, the company could be placed on a sound footing.

Mr. Leslie, the receiver, said when he was appointed the company was in a state of chaos, but it was now getting into shape. He had reduced the working expenses, had ceased the advertising, and several branches. He was going down to Manchester to-morrow, and managers at Manchester had reported very favourably to him about the business there. Under proper management, he believed the shareholders possessed the nucleus of a very good business.

Mr. Holt said that this company had been as grossly mismanaged as any of the Balfour companies.

Mr. Pope: That is a very strong thing to say, considering that nobody has made a penny out of it.

Mr. Holt: I suppose the directors have been paid handsomely.

Mr. Pope: No, they have not.

Mr. Holt said the undertaking had simply been a company-promoting business, and the directors had wasted the shareholders' money in the most shameful manner. A more damnable report—perhaps excepting the Panama—he had never seen than that issued in December.

Other speakers followed in the same strain, after which Mr. Pope said if it relieved the minds of gentlemen to insult other gentlemen, who had been equally deceived as well as they, let them do so; but there was nothing to be gained by anger and recrimination. He was intensely sorry that he ever joined a company in which his friends had lost money; but he did not think his name had brought anyone with money into the concern.

Several gentlemen said that, seeing Mr. Pope's honoured name on the directorate, they had invested their money.

The chairman pointed out that the meeting was called to see what scheme should be adopted, in order to secure the best possible value for the assets. The directors could not defend themselves at that meeting.

After further discussion, the resolution proposing a voluntary liquidation was passed with only one dissentient.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of January, 1893, as compared with the same month in 1892:—

ALKALI.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
Russia	8,356	10,802	4,051	4,459
Sweden and Norway	7,258	7,919	2,856	2,006
Germany	2,906	1,132	998	454
Holland	4,213	10,528	1,233	2,972
France	4,468	3,841	2,067	1,742
Spain and Canaries	15,568	20,696	7,077	9,010
Italy	18,467	15,234	8,043	5,586
United States	273,922	333,428	93,722	105,270
Australasia	13,525	12,136	4,790	4,357
British North America ..	7,768	7,067	2,459	2,196
Other countries	63,725	70,145	25,559	26,632
Total	420,176	492,928	152,855	164,684

BLEACHING POWDER, ETC.

Port.	1892.	1893.	1892.	1893.
	Cwt.	Cwt.	£	£
United States	82,355	79,328	33,696	33,856
Other countries	34,029	33,168	13,276	12,720
Total	116,384	112,496	46,972	46,576

Parliamentary Notes.

EXPORT OF METHYLATED SPIRIT.

In the House of Commons this week Mr. Ambrose asked the Chancellor of the Exchequer whether he was aware that the refusal of her Majesty's Customs to allow a drawback of the duty to be paid on entry of spirit used for making methylated spirit, when such methylated spirit was exported, drove the export trade in this article to foreign ports; and whether he would provide in the forthcoming Budget for the repayment of such duty when methylated spirits were exported.

The Chancellor of the Exchequer: I am afraid I can give the hon. gentleman no information as to the provisions of the forthcoming Budget. (A laugh.)

Mr. Ambrose said that the right hon. gentleman had not answered the first part of the question with regard to the drawback.

The Chancellor of the Exchequer: Yes; the facts are as stated in the question. The matter was carefully examined into by my predecessor, and he was not inclined to alter the existing rules.

PRACTICAL FACTORY INSPECTORS.

Mr. Kier Hardie asked the Home Secretary whether he had received a resolution passed by the Belfast Trades Council complaining of the

inadequacy of the staff of inspectors for enforcing the provisions of the Factory Acts, and whether he proposed appointing any sub-inspectors from the ranks of duly qualified men and women who have a practical knowledge of their duties gained by working in the factories and workshops.

Mr. Asquith said he had received a copy of the resolution referred to, and added that he had already nominated fifteen additional inspectors' assistants, besides two female inspectors, all of whom, he believed, had a practical knowledge of their work.

Our Book Shelf.

THE COMPLETE BUSINESS REGISTER. Published and sold by Messrs. Pamphilon & Co., Congleton.

We have received for review a copy of the "Complete Business Register," and we have no hesitation in stating our opinion that it will be more largely used when its existence becomes better known.

The ordinary form, with printed-in headings, is eminently suitable for a great variety of businesses, but the register with blank headings is the acme of perfection, for use both in chemical offices and as a process book in the works. There is a line for daily entries, and the totals can either be added up weekly or monthly, and carried forward to the next folio. As a register or abstract for the office, or as a stock book, or consumption and production register in the works, its conciseness will recommend it, and when it is understood that its cost is only 7s. 6d. for a volume of five years' capacity, we feel quite sure many of our readers will wish to procure a copy.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

G. G. B.—We shall be pleased to receive a communication on the subject.

D. M. F. G.—We are much obliged for your supplemental information.

G. B. (Paris)—It is defunct.

W. T. G. (Ottawa)—Thanks for notification.

W. C.—They will be forwarded unless any are out of print.

G. T. B.—December 31st, 1892.

D. and Co.—It has been sent.

AGRICULTURALIST.—It will appear shortly.

P. M.—It is not made public as yet, and as far as we know the date is not fixed.

Trade Notes.

EXPORTS OF SODIUM NITRATE.—The Permanent Nitrate Committee is advised that the exports of nitrate of soda from the coast during the first three months of the current year amounted to 205,000 tons. The quantity would have been greater but for labour troubles at the ports. The Chilean Government has remitted the sum of £2,000, by way of subvention towards defraying the cost of the nitrate and iodine exhibit at the Chicago Exposition.

UTILIZATION OF SLAG.—Waste blast furnace slag may be utilised by mixing it with Portland cement in proportions dependent upon the amount of lime in the slag. The mixture by intense pressure is compressed in moulds in a dry state, the moulded article afterwards absorbs water from the atmosphere or by immersion. In this manner, drain pipes, building blocks, garden edgings, and paving blocks may be produced. The paving blocks usually have an outer roughened surface or tread formed of neat cement.

PREPARATION OF SODIUM BORATE.—This compound is generally obtained from calcium borate by treating the same with a sufficient quantity of sulphuric acid or sodium bi-sulphate so as to form $\text{CaO}(\text{B}_2\text{O}_3)_4$, which is then converted into the sodium salt by heating with sulphate of soda, the decomposition taking place in accordance with the following equation:— $\text{CaO}(\text{B}_2\text{O}_3)_4 + \text{Na}_2\text{SO}_4 = \text{Na}_2\text{O}(\text{B}_2\text{O}_3)_4 + \text{CaSO}_4$. The calcium sulphate which is precipitated is then filtered off and the sodium salt neutralized by the addition of any base to form borax.

RESIN SOAP.—The following is a method for the preparation of soap containing resin:—Resin is first saponified with carbonate of soda, about 500lbs. of soda crystals being used with 1,000lbs. of resin. 280lbs. of Glauber's salt are added, and the whole boiled to the right consistency. About an equal quantity of ordinary soap made with fatty

matter, or fatty matter and resin, is then added, either in the pan or in mixer. After mixing and crutching about 6lbs of borax, dissolved in the water, 12lbs. of silicate of soda are added. After further crutching the soap is finished and framed in the usual way. This method of procedure is patented.

PREPARATION OF AMMONIUM ACETATE.—Ammonium acetate, which is largely used by the North Fleet White Lead Co. for the manufacture of white lead, is prepared under certain patents referring to the manufacture of white lead by the following method:—Grey acetate of lime is dissolved in a small amount of water, allowed to stand and the scum skimmed off. The clear liquor is syphoned off, and is mixed with more than its equivalent of a strong solution of sodium sulphate. Calcium sulphate is precipitated, and the solution contains sodium acetate which is concentrated and crystallized. These crystals are collected, drained and heated with sulphuric acid, whereby acetic acid distils over, and sodium sulphate remains behind. The latter may be reused in the process after the carbonaceous matter has been separated by lixiviation, filtration and crystallization. The fairly pure acetic acid is then neutralized with lime, the solution evaporated, and nearly pure calcium acetate salted out which is next dissolved in water treated with pure ammonium sulphate and heated to 60°–80° C. Calcium sulphate is thereby precipitated and the required pure solution of ammonium acetate obtained.

THE POLLUTION OF THE RIBBLE.—The monthly meeting of the Ribble Joint Committee was held at Preston on Monday, Alderman Lightbown presiding. The Committee granted extensions of time for completing improved systems of sewerage to Leyland, Billinge, Ormskirk, and Clitheroe, the Inspector reporting that the authorities were showing every disposition to comply with the Board's requirements. The principal business before the meeting was river pollution by manufacturers. A letter was received from Messrs. Davies and Eckersley, the effluent from whose works discharges into the river Douglas, stating that they are constructing settling tanks, and going to considerable expense, in order to purify the effluent and avoid pollution of the stream. They pointed out, however, that the money would be thrown away unless manufacturers and others higher up the river were compelled to take similar precautions, and they complained that the Liverpool Corporation periodically discharged into the river the refuse from their sand washings at Rivington reservoirs, thus polluting the water very seriously. They further reminded the Committee that the watershed of the Douglas was taken by Liverpool Corporation, who were bound, as compensation, to supply about 3,000,000 gallons of water a day. That supply was, of course, pure when delivered (except during the sand washing), but the water from Pearl Brook, coming from Horwich, so fouled it that it was fit for nothing except condensing when it reached Messrs. Davies and Eckersley's works; and they claimed that pollution by sewage and the Liverpool Corporation sand washing ought to be stopped altogether.—The Chief Inspector reported that the sand washings referred to contained sufficient suspended matter, mineral and vegetable, to totally unfit it for trade purposes, and it would be an easy matter for the Liverpool Corporation to purify the refuse water without much expense, as they had plenty of available land. He had written to Mr. Joseph Parry, M.I.C.E., the waterworks engineer, calling his attention to the matter. This action was approved.

NOTICES.

LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market remains in much the same state reported last week, but benzol is very dull though prices have moved downwards to any extent; 90's are still worth 11s. 50-90's 1s. 3½d. Crude carbolic is firm, and 25s. 6d. at ports may be stated as to-day's value for medium soft pitch.

The sulphate of ammonia market is becoming more active month advances, and the good demand during the last day or two has caused a hardening of prices. There being now so little offer in view of the changes in nitrate, it is probable that an upward advance will again be established, and to-day's quotations are already an advance for the week.

We have received a statement from Messrs. Wilson Son and the effect that shipments at Hull are still taking place, the account of the strike shipments are not as easily made as hitherto.

REPORT ON MANURE MATERIAL.

There continues to be a good demand for all kinds of material for prompt or early delivery, but business ahead seen for the most part neglected.

For 75/80% Florida rock, 8¼d. per unit, in cargoes, c.i.f. to Kingdom now asked, and 8½d. c.i.f. to the continent. For River rock 7d., and hot-air dried South Carolina River rock 6 unit quoted, but we do not hear of business at the prices.

We do not hear of any business in River Plate cargoes of bone nominal value must therefore be considered about £4. 2s. 6d. thing due, and about £4. for anything too late for the season. On spot, crushed Kurachee bones have been out at £4 5s., ex store. The stock of bone at landing ports is now in very small compass, and there is little available near at hand. The price has consequently advanced to £4. 12s. 6d. for ordinary quality, and £4. 15s. for fine.

Nitrate of soda has experienced a further advance, and at 10s. 9d. is nearest value for good quality. Arrived at port cargoes are worth 10s. 7½d. to 10s. 9d. per cwt., according to test, but buyers will not give this price for anything not arrived. Dried blood continues in demand, and 12s. 6d. per double bags, f.o.b. Liverpool, has been paid for high test.

There is nothing special to notice in miscellaneous material.

MISCELLANEOUS CHEMICAL MARKETS.

Alkalies continue quiet in all grades, but there are no changes in current quotations. Leblanc soda ash is quoted 1¼d. f.o.b., and American ash 1¼d. per degree f.o.r. maker's work caustic soda prices are without change, viz: f.o.b. Tyne 77, f.o.b. Liverpool, 74, £10. 10s.; 70%, £9. 10s.; 65%, £8. 10s.; 60%, £8. 5s., 10 ton lots and upwards. In bleaching business continues active, more particularly for export, but there is also more demand for home trade. There is meantime no change in the quotation which stands at £8 per ton f.o.r. maker's work. Chlorates of potash and soda are still scarce, and quotations are at 9½d. to 10d. per lb. respectively. Recovered sulphur f.o.r. maker's works. For sulphate of copper there is rather an enquiry and price rules at £16. 5s. to £16. 10s. f.o.b. Potash and carbonate do not meet with any large demand, but prices without further change. Brown and grey acetates of lime are at the spot with some business doing forward at low rates. Other acetates all have a slightly lower tendency. Prussiate of potash continues steady market at 9½d. to 9¾d. Bichromates and sandry other chemicals for the textile trades are neglected, and generally, the reports indicate a quiet trade in all districts.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warms at 41s. cash. Middlesbrough 34s. 4d. cash, and Hematite 40s. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s at £44. 16s. 3d. to £45. 3s. 9d. cash, and £45. 5s. to £45. 10s. three months. Tin steady: Straits closed at £94. 7s. 6d. to £94. 10s. cash and £90. 15s. to £91. 5s. three months. Australian, £83 English ingots, £97. Lead, steady: Spanish, £9. 15s.; 1

49, 17s. 6d. to £10. Silesian spelter: Ordinary, £17. 15s.; Nickel, 11. 8½d. per lb. Antimony, £42. Quicksilver: First hands, £6. 15s., second hands, £6. 12s. Copper shares steady: Cape, 1½ to 1½. Copiapó, 2½ to 2½. Libiola, 3 to 3¼. Mason and Barry, 2½ to 2½. Rio Tinto, 15½ to 15½; Tharsis, 5 to 5½; Namaqua, 1 to 1¼; Panulillo, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—At the quarterly meeting to-day marked iron was declared at £7. 10s. bars, £8. hoops, and £8. 10s. to £9. boiler plates. Unmarked iron sold at £6. to £6. 10s., merchant bars, £5. 10s., common; £6. to £6. 10s. hoops; and £5. 10s. gas tube strips. Sheets, singles, were £6. 15s. easy, and doubles £7. to £7. 5s. Pigs sold slowly. Northampton, 40s., Derbyshire 41s. to 43s., Lincoln 44s. to 45s.

GLASGOW, WEDNESDAY.—Market completely idle. Scotch closes with buyers at 40s. 11½d. cash, and 41s. 2d. one month; sellers ask ½d. more. Middlesbrough closes with buyers at 34s. 4d. cash, and 34s. 6d. one month, sellers ask 1½d. more. Hematite closes with buyers at 45s. 6d. cash, and 45s. 8d. one month, sellers 2d. dearer.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is rather dull, and the business doing is small, prices consequently being rather easier with Lagos £27. to £27. 10s. per ton. Olive continues steady at £34. to £42. per tun, but transactions are scarce, and the demand quiet. Linseed is, if anything, a shade easier at 20s. 6d. to 21s. 6d. per cwt. for Liverpool makes, in export casks. Though quiet, the market is steady. Rape remains in *status quo*, with refined Stettin at 29s., and English refined 27s. per cwt. Cottonseed is lower in price, Liverpool refined being quoted 23s. 6d. to 25s. 6d. per cwt., but the business doing is insignificant. Castor oil: the enquiry is somewhat restricted, but holders are firm, with good seconds Calcutta at 2½d. to 2½d., first pressure French 2½d. to 2½d. Tallow is unchanged and steady. Resin, common, though standing at 4s. earlier in the week, is to-day easier at 3s. 10½d., and to arrive 3s. 9d. per cwt. offered; medium, 4s. 3d. to 7s. 6d.; fine, 9s. to 11s. per cwt. Spirits of turpentine remain unaltered at 24s. 9d. per cwt., at which figure they are steadily held. Petroleum steady: American 4¼d. to 6d. according to quality; Russian, refined, 4¾d. to 4¾d. per gallon.

COLOURS steady. Prices unaltered. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

TYNE CHEMICAL REPORT.

TUESDAY.

The chemical trade is rather steadier, and shipments becoming better as the various Baltic ports open out. Bleaching powder firm at £8. 5s. Soda crystals locally, £2. 12s. 6d., lower for special ports. Sulphur better at £4. 2s. 6d. per ton.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. 12s. 6d. per ton, 52%, £4. 16s. 3d. per ton, 56%, £5. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 10d. per lb. nett; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton net.

South Durham salt 9s. per ton, f.o.b. Tees; quiet.

Coals: Rather firmer for best Northumbrian steam, 8s. 6d. per ton being steadily adhered to; second-class steam quiet at 8s. per ton; small steam, 3s. to 3s. 3d. per ton; bunker coal very dull; the same may be said for household and manufacturing coal; coke quiet, price unaltered.

THE LIVERPOOL MINERAL MARKET.

Since the Easter holidays the market has improved. Manganese: Arrivals are nil, and prices are steady, with an upward tendency. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) quiet, with probability of a further decline; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) very brisk, at full prices; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals are slow. With the conclusion of the cotton strike better trade is doing both for "Angel White" brand and "Silvery." Barytes: Carbonate, very scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland very slow. Santander and mangiferous continue quiet. Emerystone firm: No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal are in good demand, and prices firm. Chrome ore, best qualities, are in good demand at full prices. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—During this week the markets here have been unaffected and inanimate, the only changes being in forward quotations for linseed and cotton oils, which have each receded about 15s. per ton from last week's prices. No doubt, if the strike here extends to the oil millers, as anticipated, it will have some influence upon spot quotations. The present prices are:—Linseed steady, 19s. spot, 19s. 3d. forward for May-August, 18s. 3d. last four months. Cottonseed oil is steady, spot, naked, refined, 21s. per cwt., forward 22s., May-August, crude 20s. Rape oil, brown, in casks, 22s. 6d. nearest value. Olive oils: various qualities from £34. to £40. per tun. Turpentine is in improved demand. Petroleum jelly 26s. 6d. per cwt. for orange, and white from 46s. to 56s. per cwt., in bulk.

CAKES.—Trade is being much hampered by the strike, and orders are being diverted to other districts. Cotton cakes have improved 5s. per ton on the week, and are held firmly at the advance. Current rates are:—Linseed, 95%, pure, £9. 5s. per ton. Ordinary, £7. 5s. to £7. 10s. Russians, £8. 15s. Polish, £8. 15s. Cotton Cakes firm at £5., with few sellers.

PAINTS.—Business here is very brisk, and judging from the number of firms working overtime, orders must be plentiful. Prices current are for dry colours, Venetian red, £6. to £10.; oxide of iron, £9. to £18 per ton; ochre (French, J.C.), 60s.; fine linseed oil putty, £6.; ready-mixed paints, according to brand, 28s. to 30s. per cwt.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, April 5th, 1893, state—

Charters for the past fortnight are cable as 650 tons, against 850 tons for the previous fortnight, making 1,500 tons for the month. The total since 31st December is 4,650 tons. Same time last year the quantity was 5,700 tons. Exchange 15¼d. to 15¾d.

Since our last report about 5,000 tons of G.m.b.'s and G.o.b.'s have been sold with scarcely any variation in price, certainly not over 3s. 9d. per ton, and we close to-day at £45. 3s. 9d. cash, and £45. 12s. 6d. three months.

The Tharsis Copper Company announce their yearly dividend as 6s. per share of £2., equal to 15 per cent., but as the shares are now quoted £5., this dividend will only return 6 per cent.

The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 921 tons for the fortnight, which, with a decrease of 1,678 tons for the previous fortnight, makes the total decrease 2,599 tons for the month. The stocks include about 2,500 tons of copper sold, but

not yet delivered to the smelters. The visible supply shows a decrease of 686 tons for the fortnight, which, with a decrease of 714 tons for the previous fortnight, makes a total decrease of 1,400 tons for the month. The total deliveries for the fortnight are 6,635 tons, which, with 3,335 tons for the previous fortnight, makes a total of 9,970 tons for the month.

The present stock of English G.M.B.'s in warehouse, Liverpool and Swansea, is 354 tons, against 631 tons on the 16th ult. The delivery in Liverpool and Swansea was 277 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts are quiet, but steady. Quotations being:—Tough cake, £48. to £48 10s., best select £49. 10s. to £50., Indian sheets £52. 15s. to £53., strong sheets £56. 1cs. to £57., and yellow metal sheets 4½d. to 4¾d. per lb.

The sales of furnace material comprise—190 tons Mexican ore at 9s. 1½d.; 20 tons of Spanish ore, at 8s. 6d.; 68 tons Cueva de la Mora precipitate, to arrive, at 9s. 4½d.; 7 tons Aljustrel precipitate, at 9s. 3d.; 110 tons Australian matte, to arrive, Swansea, at 9s. 1½d.; 330 tons Chili regulus, to arrive, at 9s. 1½d. per unit; 32 tons argentiferous Chili regulus, 600 tons argentiferous Montana matte, and 240 tons argentiferous leady matte, on private terms.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Owing to the increased number of resellers, sulphate of ammonia has lost somewhat in spot price, but makers' views indicate that the article is still really firm. One of the latter got £12. 12s. 6d. at the close of the week, but buyers to-day can get their needs supplied at from £12 8s. 9d. to £12. 10s. Forward delivery quotation is at present £11. 10s. (May-September), but this is stiff enough for buyers' estimate. At £11. 5s. to £11. 6s. 3d. the latter would buy pretty freely, but as it is there is little or nothing doing in forward.

In mineral oils and paraffins there are no changes of value to report, but demand all round is certainly not so healthy as makers would like, scale and wax being flat, and lubricating oils failing as yet to find perceptible benefit from the resumption of mill work in Lancashire.

Ordinary chemicals show little change, and are for the most part idle. Bleach still retains its firmness. There has been some recovery in sulphur, which is in improved demand. Bichromates have a slightly improved enquiry.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 2s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. nett Tyne; bleaching powder, £8. 5s. nett Tyne; salicake, 25s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4½d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3¼d. nett f.o.b. Glasgow); chlorate of potash, 9d., less 5% Liverpool; nitrate of soda, 10s. 6d.; sulphate of ammonia, spot £12. 8s. 9d. to £12. 10s. f.o.b. Leith; salammuniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 86°, £3. 15s. to £4.; 88°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 15,475 bags.

New Companies.

Union Soap Co., Ltd.—CAPITAL £2,000. in shares of £5. This company has been formed to carry on the business of soap manufacturers and makers of black lead and blue.

Horse Owners' Association, Ltd.—CAPITAL £20,000 in £1. shares. This company has been formed to carry on the business of horse slaughterers, bone boilers, manufacturers of glue, and oil refiners. The subscribers to the Memorandum of Association are:—E. Coleman, M.R.C.V.S., Ropemakers' street, E.C.; S. Taylor, 88a, Tooley street, S.E., cartage contractor; W. Fairclough, 10, Christian street, E., carrier; H. E. Foster, 6, Poultry, E.C., auctioneer; P. C. Tatham, 11, Queen Victoria street, E.C., solicitor; S. Crews, 289, High street, N.W., omnibus proprietor; I. Lavington, 69, Old Bailey, E.C., carman and contractor.

Pontardulais Chemical Co., Ltd.—CAPITAL £12,000 shares. This company has been formed to take over and carry on business of chemical manufacturers, hitherto carried on by Williams, and to manufacture vitriol, sulphate of copper, hydrochloric, oxalic, and other acids. The subscribers to the Memorandum of Association are:—R. H. Sampson, Pontardulais manufacturer; D. Richards, Ammanford, tinplate manufacturer; Davies, Pontardulais, tinplate manufacturer; K. Harris, Fox, tinplate manufacturer; W. Watkins, Swansea, tinplate manufacturer; F. Freeman, Swansea, tinplate manufacturer; J. Williams, tinplate manufacturer.

The Patent List.

This list is compiled from Official sources in the Mechanical Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in the Purification of Sewage and Other Impure Liquids. J. J. Meldrum and T. F. Meldrum. 6,423. March 27.
Improvements in Boilers for Chemically Treating Fibrous Materials. G. Sinclair. 6,441. March 27.
Apparatus for Showing the Expansion of Crystals by the Heat Produced by Electric Force. J. Swift. 6,446. March 27.
Improved Aqua Ammonia Engines. C. L. Horack. 6,453. March 27.
Feed Water Purifying Apparatus. R. W. B. Sanderson. 6,457. March 28.
Consumption of Smoke and Waste Gases in Furnaces. E. Smith. 6,458. March 28.
Improvements in Drying Apparatus. L. M. Larson and C. J. Johnson. 6,458. March 28.
Improvements in the Extraction of Rhea Fibre and Other Vegetable Fibres. H. C. Fellowes, W. R. Crozier, and H. F. Farnham. 6,459. March 28.
Improvements in Diaphragms for Use in Electrolytic Processes. T. Parker. 6,605. March 29.
Refrigerating Apparatus. Ernst de Pass. 6,644. March 29.
Improvements in the Electrometallurgy of Zinc. S. O. Croft. 6,671. March 29.
Apparatus for Extinguishing Fires with Liquidified or Solidified Acid Gas. J. E. Kenny and C. R. C. Tichborne. 6,679. March 29.
Manufacture of Acetic Acid and Acetates from Pyrolytic Gases. Pyrolytic Gases with Formation of Sulphur, Sulphur, and Gases. T. H. Cobley and D. Jones. 6,738. March 30.
Improvements in the Manufacture of a Certain Soap. L. M. Larson. 6,743. March 30.
Purifying Sewage Effluents by Means of Oxygen. F. F. Farnham. 6,743. March 30.
Manufacture of Salols. C. Kolbe. 6,749. March 30.
Extraction of Chromium by Electrolysis. E. Placet and J. Bonnet. 6,750. March 30.

GERMAN PATENTS for week ending APRIL 8th.

Specially abstracted by Dr. H. Zerener, civil engineer, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subjects of his country.

8 C. 4,418. Preparation of Viscoides Derivatives of Cellulose. Dr. F. Cross, E. J. Bevan, and C. Beadle, London.
12 D. 5,245. Preparation of Ethers of Oleic and Stearic Acids. Dr. F. von Heyden, Nachfolger, in Radenbeil, Danzig.
58 S. 6,937. Refining Sugar. Dr. J. Soxhlet, Munschen.
22 C. 3,812. Preparation of Di and Triazo Dyes of the Azo Type. Dr. F. von Heyden, Nachfolger, in Radenbeil, Danzig.
22 F. 6,159. Preparation of α Nitro-Anthra- and Flavopurpurine. Dr. F. von Heyden, Nachfolger, in Radenbeil, Danzig.
22 F. 6,411. Preparation of Crinolin Derivatives of Anthraquinone. Dr. F. von Heyden, Nachfolger, in Radenbeil, Danzig.
24 F. 6,419. Preparation of μ Cyanotetramethyldiamidodiphenylmethane. Dr. F. von Heyden, Nachfolger, in Radenbeil, Danzig.
23. Apparatus for Purifying Oil. E. Noppel, B. Grosche, and Philadelphia.
75. Manufacture of Alumina. J. Heibling, Paris.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

GUSTAVE DIETRICH, GEORGE DIETRICH, O. C. HAGEMANN, R. E. LANDSHOFF, A. DOMIER, J. HAUP, J. BUCHANAN, J. M. STELLER, Jun., and L. MOYES, coal and shale proprietors, Limited, London, E.C., under the style of the Servian Oil Syndicate.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		
Week ending April 1st.		
Acetanilide—		
Holland,	3 pkgs.	R. Morrison & Co.
Alkali—		
France,	110 c.	Arnati & Harrison
Alum—		
Holland,	14 pkgs.	Ohlenschlager Bros.
Aluminium—		
France,	£100	Major & Field
"	12	Sollas & Sons
Antimony—		
Australia,	6 t.	L. & I. D. Jt. Co.
France,	8	B. & F. Wf. Co., Ltd.
Australia,	70	W. B. Marcus
Arsenic—		
Germany,	100 pkgs.	Williams, Torrey, & Co., Ltd.
Asbestos—		
Holland,	£12	G. Rahn & Co.
Italy,	219	Brit. Asbestos Co.
"	175	London
"	13	A. Laming & Co.
Barium Chloride—		
Germany,	22 pkgs.	Petri Bros.
Barytes—		
Belgium,	18 cks.	S. H. Willoughby
"	6	J. L. Lyon & Co.
Germany,	56	W. Harrison & Co.
Borate of Manganese—		
Germany,	20 pkgs.	Petri Bros.
Borax—		
Germany,	4 pkgs.	L. & I. D. Jt. Co.
Caustic Soda—		
U. States,	32 c.	Anderson, Weber, & Smith
Columbia, U.S.,	75 c.	Prop. Bull Wf.
Ungary,	249 c.	
E. Indies,	69	L. & I. D. Jt. Co.
Zanzibar,	1	Clarke & Smith
France,	24	T. H. Lee
Rangoon,	160	L. & I. D. Jt. Co.
Carthage,	25	Stiebel Bros.
Madagascar,	24	L. & I. D. Jt. Co.
Carbolic Acid—		
Holland,	50 pkgs.	Phillipps & Graves
Castor Oil—		
Italy,	20 cs.	Windschuegl & Co.
"	25	Stebbing & Co.
"	20	Major & Field
"	10	Beresford & Co.
"	25	Barron, Harveys, & Co.
"	10	B. & F. Wf. Co., Ltd.
"	19.	Evans, Lescher, & Co.
Belgium,	40 brls.	Fuerst Bros.
France,	15	J. T. Morton
E. Indies,	44	Beresford & Co.
"	65 cks.	Cayzer, Irvine, & Co.
Italy,	5 cs.	J. Knill & Co.
"	10	A. Laming & Co.
Caustic Potash—		
Holland,	40 c.	Beresford & Co.
Caustic Soda—		
Belgium,	4 c.	Union L. Co., Ltd.
Chemicals (otherwise undscribed)		
Germany,	£5	R. Thompson
U. States,	10 pkgs.	B. & N. Wf. Co., Ltd.
Germany,	18	T. H. Lee
"	73	A. & M. Zimmermann
Holland,	4	Craven & Co.
Germany,	£12	T. Palmer
Germany,	15	Phillipps & Graves
Citrate of Lime—		
Italy,	10 pkgs.	Thames S. T. & L. Co., Ltd.
Copperas—		
Germany,	31 pkgs.	B. & N. Wf. Co., Ltd.
Cream of Tartar—		
Italy,	15 pkgs.	Thames S. T. & L. Co., Ltd.
Holland,	20	B. & F. Wf. Co., Ltd.
"	87	Middleton & Co.
France,	3	Ross & Deering
"	3 cks.	J. Puddy & Co.
"	5	W. C. Bacon & Co.
"	5	B. & F. Wf. Co., Ltd.
"	5	Smith, Abbott, & Co.
Dextrine—		
Germany,	27 pkgs.	B. & N. Wf. Co., Ltd.
"	50	H. Lorenz
"	50	M. D. Co.
Dyestuffs—		
Argols		
Italy,	250 pkgs.	Thames S. T. & L. Co., Ltd.
"	1,237	B. Jacob & Sons
Gutch		
Rangoon,	1,658 pkgs.	A. Howden & Co.
"	400	Butler's Wf. Ltd.
"	2,000	Arracan Co., Ltd.
"	3,364	Leach & Co.
"	600 t.	J. & G. Bullock & Co.
"	140	Hale & Son
"	90	Marshall & French
E. Indies,	400	R. G. Hall & Co.
Extracts		
Belgium,	150 pkgs.	Leach & Co.
Holland,	130	R. J. Fullwood & Bland
Denmark,	13	A. F. White & Co.
France,	50	T. H. Lee
Belgium,	9	Sawer, Sons, & Co.
Germany,	10	T. H. Lee
Gambier		
E. Indies,	1,305 pkgs.	Brinkmann & Co.
"	443	Cox, Patterson, & Co.
"	345	S. Barrow & Bro., Ltd.
Indigo		
E. Indies,	21 cts.	J. Owen
"	17	Elkan & Co.
"	45	L. & I. D. Jt. Co.
"	16	F. Hub & Co.
"	16	Williams, Torrey, & Co., Ltd.
"	89	Arbuthnot, Latham, & Co.
Manila,	20	S. Figgis & Co.
E. Indies,	138	Ross & Deering
"	5	P. & O. Co.
"	36	Croysdale & Co.
"	8	Parry & Co.
"	27	Benecke, Souchay, & Co.
Myrabolams		
E. Indies,	1,707 pkgs.	L. & I. D. Jt. Co.
"	3,420	A. Hagan
"	266	Beresford & Co.
"	1,366	R. G. Hall & Co.
Sumac		
Italy,	500 pkgs.	W. J. Davies & Sons
"	400	Beresford & Co.
Tanners' Bark		
Germany,	4 t.	Devitt & Hett
Turmeric		
E. Indies,	50 pkgs.	Beresford & Co.
Valonia		
A. Turkey,	10 t.	A. J. Humphrey
Farina—		
Holland,	200 pkgs.	G. Hornzee
France,	100	Hoare, Wilson, & Co.
French Chalk—		
Italy,	£40	C. F. Gerhardt
Glucose—		
U. States,	500 pkgs.	500 c.
"	50	300 c.
"	1,000	1,000
"	100	560
"	100	603
Germany,	300	300
Guanine—		
Germany,	438 t.	Anglo Contl. G. Wks.
Iron Perchloride—		
Holland,	5 pkgs.	R. Morrison & Co.
Lead Acetate—		
Germany,	2 pkgs.	Beresford & Co.
"	8	Petri Bros.
Manganese—		
Australia,	25 t.	Harrold Bros.
Manure—		
Germany,	100 t.	Anglo Contl. G. Wks.
"	215	Agrethl. & Horteltr. As.
France,	95	F. W. Berk & Co., Ltd.
"	95	J. Burnett & Sons
Methyl Alcohol—		
Germany,	8 dms	10 cks.
U. States,	12 brls.	Allan Bros. & Co.
Mica—		
Adelaide,	£250	W. M. Smith & Sons
E. Indies,	70	"
U. States,	190	"
Ochre—		
France,	75 brls.	Williams, Torrey, & Co.
Holland,	6 pkgs.	Phillipps & Graves
Painters' Colours—		
Germany,	17 pkgs.	T. H. Lee
"	15	Phillipps & Graves
"	42	Spies Bros. & Co.
Sweden,	88	F. V. Smythe & Co.
Italy,	202	Williams, Torrey, & Co.
Belgium,	18	A. Zumbek & Co.
"	31	T. Palmer
"	100	T. H. Lee
Germany,	7	L. & I. D. Jt. Co.
France,	2	Hernut, Peron, & Co.
Holland,	2 cks.	Phillipps & Graves
France,	51 pkgs.	Flageollet & Co.
Germany,	153	J. B. Orr & Co.
"	14	B. & F. Wf. Co., Ltd.
Italy,	10	A. Laming & Co.
Holland,	3 pkgs.	O'Hara & Hour
Austria,	5	M. D. Co.
Holland,	13	W. Harrison & Co.
Germany,	2	Steinhoff & Co.
U. States,	50	A. C. Davey
Paraffin Wax—		
U. States,	410 brls.	H. Hill & Sons
"	2,392	J. H. Usmar & Co.
Rangoon,	330	H. Hill & Sons
Phosphate Rock—		
France,	296 t.	A. Hunter & Co.
Holland,	213	Anglo Contl. G. Wks.
"	240	T. Farmer & Co.
"	150	Lawes Chemical M. Co.
Belgium,	215	Odams Chemical M. Co.
"	243	West & Penrose
"	150	Sawer, Sons, & Oakley
France,	300	D. De Pas & Co.
"	300	Lawes Chemical M. Co.
Pitch—		
Germany,	14 cks.	T. H. Lee
France,	29 brls.	Poth, Hille, & Co.
Plumbago—		
Ceylon,	183 brls.	Beresford & Co.
Holland,	149	R. G. Hall & Co.
"	34 cks.	B. Gallaway
Potash—		
France,	200 c.	Petri Bros.
Potassium Carbonate—		
France,	40 c.	Spies Bros. & Co.
Belgium,	5	Union L. Co., Ltd.
U. States,	132	J. Barber & Co.
Potassium Cyanide—		
Holland,	20 pkgs.	A. & M. Zimmermann
Quicksilver—		
E. Indies,	500 brls.	L. & I. D. Jt. Co.
"	5,000	Spies Bros. & Co.
"	5,000 flks.	N. M. Rothschild & Co.
Rosin—		
France,	15 brls.	Lucas & Spencer's Wf.
Salicylates—		
Holland,	10 pkgs.	R. Morrison & Co.
Saltpetre—		
Germany,	63 cks.	P. Hecker & Co.
Caleta Buena,	23,912 bgs.	W. Montgomery & Co.
E. Indies,	1,326 bgs.	Ralli Bros.
Soda Ash—		
Belgium,	13 c.	Union L. Co., Ltd.
Sodium Acetate—		
France,	9 pkgs.	S. F. Waters & Co.
Sodium Chlorate—		
France,	50 pkgs.	A. Hughes
Sodium Nitrite—		
Germany,	3 pkgs.	Page, Son, & Co.
Sodium Silicate—		
Germany,	25 pkgs.	Beresford & Co.
Stearine—		
Holland,	2 bgs.	Robinson, Roberts, & Co.
"	108	H. Hill & Sons
Belgium,	37	"
Sulphur—		
Italy,	250 t.	Brandram Bros. & Co.
"	20	G. Boor & Co.
Tallow—		
U. States,	182 cks.	W. Balchin
Gibraltar,	31	J. Graves
"	16	Phillipps & Graves
Melbourne,	168	Arnati & Harrison
Sydney,	159	Horne & Co.
"	59	Beresford & Co.
"	537	Phillipps & Graves
Tallow and Stearine—		
U. States,	20 pkgs.	Chesbrough Manufacturing Co.
"	60	Williams, Torrey, & Co.
Tar—		
Germany,	14 brls.	Hammond & Co.
Tartaric Acid—		
Holland,	37 pkgs.	B. & F. Wf. Co., Ltd.
Ultramarine—		
Holland,	16 pkgs.	Hernut, Peron, & Co.
"	2 c.	G. Rahn & Co.
Varnish—		
U. States,	1 pkg.	Horne & Co.
"	11	Pinchin, Johnson, & Co.
"	1	G. W. Wheatley & Co.
Belgium,	1	Stobbs, Wilson, & Co.

Verdigris —	
France, 2 pkgs.	B. & F. Wf. Co., Ltd.
White Lead —	
Austria, 16 cs.	W. Adolph & Co.
Germany, 52 cks.	Elkan & Co.
Holland, 14	Burrell & Co.
" 40	T. & W. Farmiloe
" 7	Phillipps & Graves
Germany, 12	Petri Bros.
" 24	M. Ashby, Ltd.
Zinc Oxide —	
Germany, 50 brls.	M. Ashby, Ltd.
Holland, 625 cks.	Soundy & Sons

LIVERPOOL.

Week ending March 30th.

Acetate of Lime —	
N. York, 2,632 bgs.	
Alkali —	
Antwerp, 10 brls.	J. T. Fletcher & Co.
Aniline Salts —	
New York, 13 cs.	Clayton Aniline Co.
Asbestos —	
Rotterdam, 1 cs.	
Barytes —	
Rotterdam, 25 cks.	
Antwerp, 12	
Boracic Acid —	
Leghorn, 20 cks.	
Borate of Lime —	
Valparaiso, 375 bgs.	
Castor Oil —	
Genoa, 19 cs.	Evans, Sons & Co.
Chemicals (otherwise undescribed)	
Rotterdam, 5 cks.	
Cobalt Oxide —	
Rotterdam, 1 cs.	
Colours —	
Rotterdam, 26 cks. 33 cs. 10 brls.	
Cream of Tartar —	
Bordeaux, 7 cks.	
Dyestuffs —	
Annatto	
Bordeaux, 2 cks.	
Cochineal	
Las Palmas, 4 bgs.	Widow, Duranty & Son
Gr. Canary, 30	
Divi Divi	
Hamburg, 204 bgs.	
Extracts	
New York, 30 kgs.	A. J. White & Co., Ltd.
Bordeaux, 50 cks.	
New York, 10 brls. 1 cs.	F. Ree
Antwerp, 1 ck.	J. T. Fletcher & Co.
Fiume, 496 brls.	De Clermont & Donner
" 1,000	Boucher, Bacon & Co.
Fustic	
Colon, 69 ps.	Leech & Co.
Tampico, 4,463	Oetling & Co.
Gambler	
Singapore, 422 bls.	R. & J. Henderson
Madder	
Rotterdam, 1 ck.	
Orchella	
Lisbon, 31 sks.	A. Barboza & Co.
Saffron	
Valencia, 2 cs.	
Sumac	
Palermo, 258 bls. 1,150 bgs.	
Bordeaux, 139	
Valonia	
Marathousi, 165 t.	Papayanni & Jeremias
Corfu, 85 bgs.	
Patras, 320	G. E. Spiropulo
" 400	C. G. Papayanni & Jeremias
Farina —	
New York, 400 bgs. 1,200 sks.	
Baltimore, 800	
Rotterdam, 199	
Antwerp, 5	J. T. Fletcher & Co.
Fiume, 80	Bennel & Basch
" 200	
French Chalk —	
Leghorn, 4 cs.	
Glucose —	
New York, 150 brls.	
Hamburg, 3 cks.	
Iodine —	
Valparaiso, 20 brls.	W. & J. Lockett
" 120	A. Gibbs & Sons

Lead Acetate —	
Hamburg, 20 cks.	
Rouen, 10	R. J. Francis & Co.
Lime —	
New York, 883 bgs.	
Limestone —	
Antwerp, 1 crt.	
Manganese —	
Valparaiso, qty.	
Rotterdam, 2 cks.	
Mica —	
New York, 20 brls.	Robinson & Allen
Mineral White —	
Fiume, 35 bgs.	E. Elbogen
Trieste, 100	Schroder & Co.
" 100	F. Parisi
Oleo-Stearine —	
New York, 18 cks.	
Paint —	
New York, 3 cs.	W. Nicol & Co.
Pyrites —	
Huelva, 1,546 t.	Tennants & Co.
" 4,444	Matheson & Co.
Rosin —	
Hamburg, 5 cs.	
Bordeaux, 133 cks.	
Cean, 27 bgs.	Pinto Leite & Co.
Salt —	
Antwerp, 8 cks.	J. T. Fletcher & Co.
Saltpetre —	
Hamburg, 4 cks. 30 brls.	
Silver Sulphate —	
Colon, 3 cs.	Sanchez & Gaffron
Soap —	
New York, 20 pkgs.	
Naples, 59 cs.	A. Auverney & Co.
Antwerp, 1	
Barl, 281	
New York, 51	T. W. Millan & Co.
Soapstone —	
Genoa, 400 bgs.	W. Harrison & Co.
" 658	
Soda —	
Rotterdam, 2 cks.	
Sulphur —	
Catania, 120 t. 210 bgs.	
Huelva, 2,499	Matheson & Co.
Sulphur Oil —	
Brindisi, 64 brls.	
Tartar —	
Naples, 2 cks.	
Bordeaux, 23	
Tartaric Acid —	
Rotterdam, 23 cks. 15 kgs.	
Ultramarine —	
Rotterdam, 18 cs. 1 ck.	
Hamburg, 18	14 cks.
Verdigris —	
Bordeaux, 1 ck.	
White Lead —	
Ghent, 8 brls.	
Antwerp, 11 cks.	
Rotterdam, 52 cs.	
Zinc Oxide —	
Antwerp, 35 brls.	

HULL.

Week ending April 1st.

Alum —	
Rotterdam, 133 cks.	W. & C. L. Ringrose
Asbestos —	
Flushing, 6 bls.	Wilson, Sons & Co., Ltd.
Barytes —	
Rotterdam, 23 cks.	Hutchinson & Son
Bremen, 25	Veltmann & Co.
" 46	G. Holmes & Co.
" 103 bgs.	
Barium Superoxide —	
Hamburg, 11 cks.	C. M. Lofthouse & Co.
Caoutchouc —	
Hamburg, 2 bls.	C. M. Lofthouse & Co.
Caustic Soda —	
Rotterdam, 3 cs.	G. Lawson & Sons
Chemicals (otherwise undescribed)	
Hamburg, 28 cks.	Wilson, Sons & Co., Ltd.
Bremen, 1 cs. 2	4 pks. Veltmann & Co.
Stettin, 20	Wilson, Sons & Co., Ltd.
Antwerp, 59	"
Colours —	
Hamburg, 18 pkgs.	
Rotterdam, 3 cks.	Hutchinson & Son
Flushing, 44	14 cs. Wilson, Sons & Co., Ltd.
Ghent, 49	" Veltmann & Co.
Bremen, 2	Todd & Son
" 4	J. Pyefinch & Co.
" 3	
Rotterdam, 5	28 pks. W. & C. L. Ringrose
" 25	Sissons Bros. & Co.
" 40	G. Lawson & Sons
" 30	Reckitt & Sons
" 1	A. Sanderson & Co.
Antwerp, 8	Wilson, Sons & Co., Ltd.
Cottonseed Oil —	
Trieste, 500 brls.	Wilson, Sons & Co., Ltd.
Cream of Tartar —	
Rotterdam, 2 cks.	Hutchinson & Son
Dextrine —	
Stettin, 250 bgs.	Wilson, Sons & Co., Ltd.
Dyestuffs —	
Alizarine	
Flushing, 81 cks. 5 cs.	Wilson, Sons & Co., Ltd.
Rotterdam, 50	W. & C. L. Ringrose
Madder	
Rotterdam, 1 ck.	W. & C. L. Ringrose
Sumac	
Palermo, 1,068 bgs.	Wilson, Sons & Co., Ltd.
Valonia	
Smyrna, 450	
" 125 t.	
Farina —	
Hamburg, 2,000 bgs.	Wilson, Sons & Co., Ltd.
Harlingen, 400	
Ghent, 128 bxs.	Wilson, Sons & Co., Ltd.
Stettin, 600 bgs.	"
Glucose —	
Rotterdam, 50 bgs.	Hutchinson & Son
Iron Oxide —	
Hamburg, 5 cks.	Wilson, Sons & Co., Ltd.
Ochre —	
Rouen, 64 cks.	Rawson & Robinson
Phosphate —	
Antwerp, 10 t.	Bailey & Leatham
" 100 bgs.	E. Kippes & Co.
Ghent, 203	250 t. Wilson, Sons & Co., Ltd.
Potash —	
Rotterdam, 1 ck.	W. & C. L. Ringrose
Quicksilver —	
Trieste, 1 cs.	Wilson, Sons & Co., Ltd.
Size —	
Rotterdam, 6 cs.	W. & C. L. Ringrose
Soda —	
Antwerp, 8 cks.	Bailey & Leatham
Stearine —	
Rotterdam, 11 bls.	Hutchinson & Son
Antwerp, 56 bgs.	Wilson, Sons & Co., Ltd.
Sulphur —	
Huelva, 514 t.	
Catania, 1,120 pks.	Wilson, Sons & Co., Ltd.
" 314	
Tartaric Acid —	
Rotterdam, 10 cks.	Hutchinson & Son
" 13	W. & C. L. Ringrose
Terpentine —	
Libau, 103 cks.	
Ultramarine —	
Rotterdam, 1 cs.	Hutchinson & Son
Bremen, 20 cks.	
Varnish —	
Amsterdam, 5 brls.	
Waste Salt —	
Hamburg, 610 bgs.	Furley & Co.
" 806	
White Lead —	
Rotterdam, 61 cks.	Hutchinson & Son
Antwerp, 21	Bailey & Leatham
Ghent, 8	Wilson, Sons & Co., Ltd.
Rotterdam, 10	Sissons Bros. & Co.
" 13	A. Sanderson & Co.

GLASGOW.

Week ending April 1st.

Barium Chloride —	
Rotterdam, 23 cks.	J. K.
Barium Sulphate —	
Antwerp, 21 cks.	
Barytes —	
Rotterdam, 46 cks.	J. K.
" 46	
Bleaching Powder —	
New York, 100 bgs.	
Antwerp, 28 cks.	
Colours —	
Rotterdam, 3 cs. 3 cks.	
Amsterdam, 6	
Rotterdam, 9	
Hamburg, 7 dms.	
Dextrine —	
Stettin, 911 bgs.	
Dyestuffs —	
Alizarine	
Rotterdam, 50 cks. 2 cs.	
" 225 pkgs.	
Extracts	
New York, 15 brls.	
Antwerp, 1 ck.	
Farina —	
Stettin, 870 bgs.	
Glucose —	
New York, 399 brls.	
Stettin, 1 ck.	
Rotterdam, 22	J. Rankin
Iodine —	
New York, 1 lb.	
Ochre —	
Rouen, 6 cks.	
Paint —	
In transit, 17 cs.	
Phosphate Rock —	
Bona, 105 t.	Credence
Pitch —	
Antwerp, 10 cks.	
Potash —	
Rotterdam, 24 cks.	J. K.
Potassium Carbonate —	
Hamburg, 2 cks.	
Pyrites —	
Huelva, 3,419 t.	Tharke & Co.
Rosin —	
New York, 300 brls.	
" 250	W. N. G.
Soap —	
New York, 850 lbs.	
Sodium Acetate —	
Antwerp, 9 cks.	
Stearine —	
Rotterdam, 15 cks.	J. K.
Sulphuric Acid —	
New York, 4 brls.	
Tallow —	
New York, 30 brls.	17 lbs.
Tartaric Acid —	
Rotterdam, 2 cks.	J. K.
Varnish —	
New York, 1 kg. 5 cs.	
Waste Salt —	
Hamburg, 2,018 bgs.	
Zinc Oxide —	
Antwerp, 75 cks.	
Zinc White —	
Rotterdam, 50 cks.	

TYNE.

Week ending April 1st.

Alum Earth —	
Hamburg, 18 cks.	756
Barytes —	
Rotterdam, 26 cks. 50 bgs.	756
" 64	

		GOOLE.		Extracts		GRIMSBY.	
		<i>Week ending March 22nd.</i>				<i>Week ending March 25th.</i>	
one—		Acetic Acid—		Hamburg, 20 cks.		Caoutchouc—	
lam, 3 cks.		Rotterdam, 1 cs.		Madder		Hamburg, 3 cs. 15 pkgs.	
lam, 500 bgs.		Alkali—		Rotterdam, 3 cks.		Rotterdam, 2	
lam, 20 bgs.	Tyne S. S. Co.	Calais, 2 cks.		Dyestuffs (otherwise undescribed)		Chemicals (otherwise undescribed)	
lam, 51 bgs.	Tyne S. S. Co.	Alum—		Boulogne, 12 cks. 7 pkgs. 15 cs.		Rotterdam, 25 pkgs.	
agen, 90 t.		Rotterdam, 14 cks.		Farina—		Antwerp, 2 cks.	
lam, 1 cs.	Tyne S. S. Co.	Benzol—		Hamburg, 1,070 bgs.		Hamburg, 9	
lam, 912 .	Mason & Barry	Rotterdam, 3 cks.		Glucose—		Farina—	
arine—		Caoutchouc—		Rotterdam, 20 bgs.		Hamburg, 200 bgs.	
rg, 1 ck.	Tyne S. S. Co.	Boulogne, 3 cks.		Potash—		Size—	
		Dyestuffs—		Calais, 46 dms.		Antwerp, 3 cks.	
		Altzarine		Rotterdam, 20 cks.		Zinc Ashes—	
		Rotterdam, 26 cks. 78 pkgs.		Dunkirk, 70 22		Antwerp, 24 cks.	
				Saltpetre—			
				Rotterdam, 100 bgs.			
				Waste Salt—			
				Hamburg, 289 cks. 1,016 bgs.			

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.*Week ending April 5th.*

ar, 5 c.	£6	Creosote	
um Carbonate—		Dieppe, 399 brls.	£84
10 cs.	£30	Danzig, 100	67
1 t. 10 c.	42	Creosote Salts	
8 cks.	31	Philadelphia, 674 bags.	£107
10	14	Naphtha	
Alum Chloride—		Adelaide, 5 cs.	£16
stinople, 5 t. 2 c.	£159	Naphthaline	
60 t.	£745	Antwerp, 1 ck.	£11
555	6,660	N. Y. 398	547
209	2,425	Paraffin Wax	
5 15	58	Hobart, 5 tanks.	£181
4 11	46	Pitch	
ique, 200	2,400	Constantinople, 400 brls.	£157
83	862	Tar	
113 6 c.	1,355	Grenada, 7 pkgs.	£10
lam, 245	3,051	Tar Oil	
Alde of Carbon—		New Orleans, 5,825 cks.	£1,237
6 t. 6 c.	£80	Toluol	
10 cs.	13	Rotterdam, 39 runs, 25 cks.	£187
Acid—		Copper Sulphate—	
10 cs.	£39	Malta, 5 t.	£103
10 c.	31	Oporto, 3	48
Potash—		Bordeaux, 15	240
6 c.	£10	Cream of Tartar—	
Soda—		Sydney, 1 t. 3 c.	£92
6 c.	£8	Melbourne, 1 10	120
own, 10 t.	101	Disinfectants—	
me, 6	9	Malta, 16 c.	£33
ay, 18	29	Ferrous Sulphate—	
12	14	Tripoli, 15 t. 16 c.	£35
als (otherwise undescribed)		Guano—	
ay, 8 cs. 3 c.	£13	Cullera, 310 t. 19 c.	£2,332
2 3	45	Malaga, 29 6	225
3	14	Morlaix, 43	344
5	17	N. York, 100 1	525
Acid—		Trinidad, 96	960
4 c.	£34	Manure—	
2 cs.	10	Gandia, 200 t.	£1,600
3	27	Natal, 17 c.	30
1 ck.	39	Trinidad, 129 5	822
Products—		Martinique, 289 5	2,393
rine		Cleveland Bay, 14 18	221
retta, 20 kgs.	£38	St. Kitts, 37 9	388
ne		Grenada, 2	22
am, 10 drs.	£350	Stettin, 4 19	45
ai, 100 cs.	456	Hamburg, 29 11	100
ne Dyes		Bordeaux, 33 7	125
1 cs.	£17	Rotterdam, 37 10	338
racene		Antigua, 8	77
am, 105 cks.	£392	Phosphorus—	
ol		Halifax, 30 cs.	£285
28 pkgs.	£74	Canaries, 6 c.	68
am, 20 cks. 11 drs.	333	Sydney, 1	10
20 25 runs,	257	Potash Crystals—	
125	458	N. York, 8 c.	£52
12	180	Potassium Chlorate—	
Tar Dyes		Adelaide, 5 kgs.	£21
11 cks.	£549	Sheep Dip—	
		B. Ayres, 750 cs.	£2,250
		Soda Crystals—	
		Newcastle, 33 t.	£104
		Sodium Bicarbonate—	
		Port Said, 1 t. 1 c.	£8
		Sodium Hyposulphite—	
		N. Orleans, 5 t.	£34
		Sulphur—	
		Mackay, 24 brls.	£31
		Madeira, 20	16
		Aden, 3 . 15 c. 25	45

Superphosphate—

Cullera, 186 t. 17 c.	£637
Treport, 29 18	180
Morlaix, 45	135
Rotterdam, 19 10	48
Martinique, 320	960
Hamburg, 49 5	175
Mauritius, 25	87
Tartaric Acid—	
Melbourne, 1 t. 10 c.	£164
Adelaide, 11	157
B. Ayres, 5 cks.	80
Sydney, 4	20
Algoa Bay, 5 kgs.	26
Corunna, 6	30

LIVERPOOL.*Week ending April 5th.*

Alum—	
Tunis, 1 t. 9 c. 3 q.	£7
Rosairo, 19	5
Smyrna, 2 16	14
Oporto, 1 16	8
Aleppo, 3 11	19
Halifax, 2 4	11
Galatz, 3 3 1	19
Madras, 14 18 1	82
Portland M., 1 2	6
Melbourne, 3	17
Alum Cake—	
Portland M., 1 t. 2 c. 3 q.	£6
Ammonium Carbonate—	
Monte Video, 4 c. 2 q.	£6
Rotterdam, 14	20
Odesa, 1 t.	28
Canada, 1	26
Rangoon, 17	31
Ammonium Chloride—	
Antwerp, 12 c.	£14
Ammonium Sulphate—	
New York, 51 t. 1 c.	£623
Valencia, 77 14	895
Barcelona, 51 3 2 q.	471
Las Palmas, 9	112
Grand Ganary, 3	39
Huelva, 1 1	10
Dunkirk, 57 5 1	600
Ghent, 50 4	600
Arsenic—	
Monte Video, 4 7 3	£62
Asbestos—	
Maranham, 1 ble.	
Bleaching Powder—	
Antwerp, 28 cks.	
Baltimore, 352	
Boston, 1,114	
Chicago, 55 bxs. 15 pkgs.	
Nantes, 28	
N. York, 589	
Philadelphia, 33 cs.	
Catania, 6	
Corunna, 8 brls.	
Ghent, 168	
Hamburg, 83	
Havana, 28	
Naples, 12	
Oporto, 9	
Venice, 6	

Boracic Acid—

Yokohama, 1 t.	£38
Antwerp, 2 5 c.	64
Borax—	
Bilbao, 1 t.	£30
Antwerp, 11 15 c.	355
Hamburg, 5 10 3 q.	176
Rotterdam, 4 4 2	129
Caustic Potash—	
N. York, 3 t. 12 c.	£72

Caustic Soda—

Alicante, 30 dms. 50 brls.	
Amsterdam, 35	
Antwerp, 15 28	
Baltimore, 476 270	
Barcelona, 424	
Bremen, 300 10	36 cks.
Callao, 40	
Charlotte Town, 30	
Chicago, 30	30 bxs.
Galatz, 252	
Hamburg, 270	
Havana, 50	
Hiogo, 350	
Ibrail, 60	
Kustendgi, 4	
La Guayra, 40	
Malaga, 130 15	
Malta, 28	
Marseilles, 190	
Nantes, 35	
Nagasaki, 100	
Naples, 68	
N. Orleans, 25	
New York, 1,680	
Philadelphia, 24	
Pireus, 10 kgs.	
San Francisco, 150	
Singapore, 15	
Sistor, 9	
Tarragona, 70	
Bahia, 25	
Bombay, 40	20 kgs.
Brisbane, 13 bxs.	
Corfu, 40	
Corunna, 17 8	
Dunedin, 14	
Fiume, 30	
Genoa, 119	
Havre, 15	
Melbourne, 130	
Messina, 36	
Oporto, 13 cks.	
Palermo, 71	
Passage, 45	
Pernambuco, 51	
Rouen, 145	
San Sebastian, 55	
Santander, 20	
Seville, 534 106	
Shanghai, 4	
Valencia, 10	
Carbolic Acid—	
Rouen, 2 t. 2 c.	£45
Hamburg, 19 14	440
B. Ayres, 8 18 2	250
N. Orleans, 2	155
Philadelphia, 5	100
Boston, 3	180
Galatz, 6 7 2	14
Sierra Leone, 1 cs.	6
Vera Cruz, 12 6	55
Hamburg, 10	308

Chemicals (otherwise undescribed)

Akassa,	18	£42
Bombay,	18	29
Galatz,	1	6
Boston,	5	1
Penang,	1	455
Gothenburg,	10	2
N. York,	9	17
		335

China Clay—

Naples,	40 cks.
Barcelona,	16 t. 5c.
Bombay,	50
Boston,	398
B. Ayres,	21 13
Calcutta,	120
N. Orleans,	25
N. York,	125
Rio Janeiro,	8½

Chloroform—

Vera Cruz,	1 cs.
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Citric Acid—

Corunna,	2 c.	£16
Vera Cruz,	6	47

Coal Products—

Aniline Colours.	
Canada,	1 ck.
Boston,	2
N. York,	48
	33 cs. 5 kgs.
	2 1 pkg.

Aniline Salts

N. York,	115 brls.
Pitch	
Galatz,	50 brls.
Ibrail,	10
Port de Bono,	2,156 t.
Seville,	645

Tar

Galatz,	70 brls.
Ibrail,	20
Lagos,	20
St. John's Nfd.	30
	40 kgs. 40½ brls.
	12 t. 8 c.

Santander,	6 cks.
Sierra Leone,	13

Cobalt Oxide—

New York,	3 c. 2 q.	£125
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Colours—

Baltimore,	167 cks. 20 kgs.
Windsor, Ont.,	3

Copperas—

Mexico City,	18 t. 14 c.	£25
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Copper Sulphate—

Patras,	10 c.	£8
Antwerp,	5 t. 2	80
M. Video,	12 q. 2 q.	193
Havre, Paris,	20 19	2
B. Ayres,	4 18	4
Rosario,	4 19	1
Bordeaux,	143 2	2,675
Tarragona,	18 2	270
Lisbon,	4 3	3
Leghorn,	10 3	2
Syra,	1 6	1
Venice,	49 1	720
Genoa,	40 5	3
Trieste,	15 1	225
Rouen,	72 15	1,137
Naples,	8 3	3
Marseilles,	195 15	2,955
Nantes,	13 1	2
Hong Kong,	1	17
M. Video,	23 17	3
		361

Dried Blood—

Grand Canary,	3 t. 2 c.	£22
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Glycerine—

Marseilles,	43 t.	£1,102
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Gypsum—

New York,	35 t. 10 c.	£131
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Lime—

Callao,	3 cks.
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Limestone—

New York,	2 cs.
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Litharge—

Corunna,	4 brls.
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Manganese Ore—

Hamburg,	5 cks.
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Manganese Sulphate—

Detroit,	4 cks.
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Magnesium Carbonate—

Tampico,	3 cs.
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Magnesium Sulphate—

Alexandria,	100 kgs.
St. John's, N. B.,	40 cks.
Tampico,	4 cs.
	£14

Manure—

Antwerp,	28 t. 4 c.	3 q. £140
Valencia,	186 17	433
Bordeaux,	63 19	1
St. Nazaire,	281 7	1
St. John's, Nfld.,	2	2
		19

Oxalic Acid—

Yokohama,	10 c.	£19
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Paint—

Alexandria,	22 dms.
Amsterdam,	5 4 kgs.
Axim,	10 2 cks.
Bahia,	8
Belize,	6
Caiharien,	1
Callao,	30 cs. 7
Cartagena, N.G.,	80 kgs.
Guayaquil,	4 cs.
Havana,	13
Iquitos,	1 2
Larnaca,	1
Para,	53
Pisco,	3
Quebec,	10
St. Thomas', W.I.,	100 kgs. 2
St. Thome,	1
Sierra Leone,	178
Vera Cruz,	19 cs.
Yarmouth,	60 kgs. 1
Antwerp,	12
Gr. Canary,	16
Half Jack,	7
Hamburg,	53 6 cs.
Huelva,	10
Macao,	24
Maracaibo,	3
Pernambuco,	54
Rosario,	8
Rotterdam,	28
St. John's, Nfld.	68 pkgs. 13
Santander,	43

Painters' Colours—

Canada,	4 cs.
Cape Town,	20 dms.
Galatz,	249 cks.
Marauham,	30 kgs. 2 cs. 10 brls.
Monrovia,	19
Para,	70 11 cks.
Pimental,	40
Rio de Janeiro,	300 1 20 dms.
Alexandria,	605 65 brls.
Bombay,	110 2 23 cs.
B. Ayres,	15 brls.
Calcutta,	5 1
Callao,	64 pkgs.
Cameroon,	2
Constantinople,	200 kgs.
Gijon,	1 bx.
Halifax,	6 brls. 15 kgs. 5
Honolulu,	13 tes.
Ibrail,	13 tes.
New York,	18 cks. 200 brls.
Old Calabar,	110 dms. 24 kgs. 4 cks.
	9 pkgs.
Port Natal,	50 kgs.
Valparaiso,	184 brls.
Victoria, Cmrs,	40 8 dms. 1 pkg.

Paraffin Wax—

Antwerp,	93 cs.
San Sebastian,	78

Plumbago—

Rosario,	6 cks.
Vera Cruz,	4

Potassium Bichromate—

Seville,	16 c.	£30
Havana,	8	1 q.
Antwerp,	2 t. 10	19

Potassium Carbonate—

New York,	4 t. 9 c.	71
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Potassium Chlorate—

Boston,	5 t. 5 c.	£104
Rotterdam,	2	122
Mollendo,	10	34
Hioho,	20 15	1,204
New York,	23 15	1,381
Santos,	10	32
Hamburg,	2	117
Philadelphia,	2 10	144
Odessa,	10	20
Shanghai,	13 1	718

Salammoniac—

Trieste,	2 t.	£66
Ibrail,	4 c.	6
Rustchuk,	6	10
Madras,	1 2 2 q.	37
Constantinople,	1	33

Saltcake—

Baltimore,	634 t. 18 c.	£1,429
Wellington, N.Z.,	2	6

Salt—

Calcutta,	1,124 t.
Canada,	38
Capetown,	15
Demerara,	20
Hamburg,	1 13 c.
Honolulu,	12 10
Iquique,	30
Loango,	16
Melbourne,	150

Old Calabar,	77	10
Opobo,	103	3
Trinidad,	54	5
Westervik,	400	
Winnebah,	8	15
Amsterdam,	175	
Antwerp,	275	
Benin,	17	15
Bonny,	68	8
Boston,	20	
B. Ayres,	53	10
C. C. Castle,	13	2½
Detroit,	60	
Ghent,	60	
Halifax,	1,990	
M. Video,	5	11
New Orleans,	13	
" York,	140	
Rangoon,	988	
Rio de Janeiro,	3	
Rotterdam,	181	
Salt Pond,	50	
San Francisco,	100	2
Santos,	10	
Savannah,	398	
Tampico,	1 cs	
Warri,	69	8
Wellington,	15	

Saltpetre—

Savannah,	3 t. 2 c.	£77
Pernambuco,	3	70

Sheep Dip—

Vew Orleans,	4 t. 18 c.	£61
M. Video,	4 18 2 q.	96
Portland, M.,	4 16 1	63

Soap—

Algoa Bay,	19 cs.
Antwerp,	400 bxs.
Belize,	800
Bombay,	1,935
Boston,	27
Brussels,	100
B. Ayres,	2
Calcutta,	17
Callao,	8
Curacao,	392
Demerara,	450
Hamburg,	350
Havana,	100
Honolulu,	224
Lausanne,	15
Limon,	20
Madras,	62
Malta,	100
Montreal,	3
New York,	1,000
Old Calabar,	100
Ottawa,	92
Port Elizabeth,	15
" Natal,	5
Rangoon,	10
St. John's, Nfld.,	335
" Thomas, W.I.,	200
San Francisco,	2
Shanghai,	45
Surinham,	75
Toronto,	1,250
Vera Cruz,	36 dms.
Assinee,	20
Barbadoes,	200
Brass,	300
C. C. Castle,	80
Gr. Bassa,	230
Iquique,	30
Kingston, J.,	1,500
Kurrachee,	750
Las Palmas,	232
New Orleans,	150
Penang,	14
Rouen,	15
San Fernando,	300
Sierra Leone,	100
Singapore,	1,500

Soda Alkali—

Corfu,	20 brls.
Genoa,	35
Leghorn,	40
Smyrna,	35

Soda Ash—

Amsterdam,	20 bgs.
Antwerp,	300
Baltimore,	997 cks. 4,343
Barcelona,	20
Boston,	491 3,440
Calcutta,	125
Genoa,	30 255
Hioho,	150
Kingsey,	80
Melbourne,	66
M. Video,	10
Montreal,	14
New Orleans,	250
" York,	620 4,192
Philadelphia,	1,552 4,373
Porto Alegre,	10
Rio Grande,	20
San Francisco,	326

Wellington,	80
Yokohama,	60
Bahia,	
Brisbane,	287
B. Ayres,	
Corfu,	
Ghent,	15
Gijon,	2
Havana,	3
Oporto,	19
Rio de Janeiro,	
Salonica,	75
Saltillo,	5
Santander,	21
Varna,	

Soda Crystals—

Batavia,	60 cks.
Boston,	1,031 brls.
Hamburg,	2
New York,	100
St. John's, Nfld.,	
Constantinople,	200
Gibraltar,	30
Gijon,	14
Ibrail,	25
M. Video,	20
Napier,	
Philadelphia,	140
San Francisco,	334
Sourabaya,	

Sodium Arsenate—

Rouen,	4 brls.
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Sodium Bichromate—

Antwerp,	2 cs.
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Sodium Bicarbonate—

Antwerp,	10 kgs. 10 cks.
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Sodium Chlorate—

B. Ayres,	13
Calcutta,	475
Genoa,	19
Hamburg,	1 cs 254 11
Honolulu,	10
Hioho,	400
Leghorn,	25 15
Marseilles,	50 4
M. Video,	40
Naples,	100
Rotterdam,	20
St. John's, Nfld.	20
Trieste,	40
Barcelona,	70
Bordeaux,	85
Brisbane,	200
Dunedin,	20
Genoa,	79 37
Gothenburg,	20
Halifax,	100
Havre,	24
Madras,	250
Malaga,	20
Malta,	7
Napier,	40
Nantes,	15
New York,	100
San Francisco,	300
Seville,	40 20 brls.
Smyrna,	20
Toronto,	10
Wellington,	35

Sodium Bichromate—

Antwerp,	8 cks.
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Sodium Carbonate—

Ghent,	16
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Sodium Chlorate—

New York,	140 brls.
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Sodium Chloride—

Antwerp,	10 kgs.
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Sodium Nitrate—

Hamburg,	30
New York,	100
Rotterdam,	42
Boston,	60
Genoa,	20

Sodium Silicate—

Malaga,	6 brls.
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Sodium Sulphate—

Bombay,	390 sks.
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Tartrate—	
Antwerp, 2 cks.	
Boston, 42 cks.	
Christiania, 150 t. 6 c.	£579
Copenhagen, 3 t.	£14
Hamburg, 5 kgs. 2 dms. 3 cks.	
Rotterdam, 32	
Stavanger, 1 t. 2 c.	£10
Acid—	
Antwerp, 5 brls.	
Boston, 25 cts.	
Christiania, 10 cs.	
Copenhagen, 1 cs.	
Hamburg, 3 cks.	
Rotterdam, 8	
Stavanger, 41 t. 3 c. 3 q.	£618
Antwerp, 35	593
Boston, 186 4 2	2,915
Christiania, 9 18 2	149
Copenhagen, 35 1 1	530
Hamburg, 17 10	280
Rotterdam, 110 dms.	

HULL.

Week ending April 1st.

Sulphate—	
Antwerp, 145 kgs.	
Boston, 1,273 bgs.	
Christiania, 98	
Copenhagen, 73 cks.	
Hamburg, 171 cks.	
Rotterdam, 32	
Stavanger, 100	
Antwerp, 337	
Boston, 98	
Christiania, 28 cks.	
Copenhagen, 17 dms.	
Hamburg, 17	
Rotterdam, 103 3 cks. 20 bls.	
Stavanger, 17	
Is (otherwise undescribed)	
Antwerp, 3 cs. 1 ck.	
Boston, 24	
Christiania, 6 cs. 20 cks. 20 pks. 608 slbs.	
Copenhagen, 10 cs. 43 cks. 20 pks.	
Hamburg, 123	
Rotterdam, 2 299	
Stavanger, 39 52 111 pks.	
Antwerp, 10 13 20	
Boston, 20	
Christiania, 8 8 pks.	
Copenhagen, 5 84 170 kgs.	
Hamburg, 5 198 40 pks.	
Rotterdam, 18	
Stavanger, 26 34 16	
Antwerp, 32	
Boston, 37	
Christiania, 200 c.	
Copenhagen, 50	
Hamburg, 161	
Rotterdam, 330	
Stavanger, 200	
Antwerp, 100	
Boston, 288	
Christiania, 100	
Copenhagen, 2,888	
Hamburg, 500	
Rotterdam, 997	
Stavanger, 15 cks.	
Antwerp, 393	
Boston, 93	
Christiania, 959	
Copenhagen, 24	
Hamburg, 2 kgs.	
Rotterdam, 11 cks.	
Stavanger, 2 cs.	
Antwerp, 1 rim. 4 bls. 10 cks.	
Boston, 2 cs.	
Christiania, 145 bgs.	

Linseed Oil—	
Antwerp, 10 c.	
Boston, 140	
Christiania, 168	
Copenhagen, 363	
Hamburg, 68	
Rotterdam, 96	
Stavanger, 442	
Antwerp, 10	
Magnesia—	
Bari, 5 cks. 7 cs.	
Naphtha—	
Dunkirk, 52 cks.	
Ochre—	
Copenhagen, 1 ck.	
Hamburg, 52	
Painters' Colours—	
Amsterdam, 1 ck.	
Antwerp, 8 cs. 61 cks. 4 dms. 1 pkge.	
Boston, 1 ck.	
Bremen, 1 cs.	
Christiania, 4 cs. 15 cks. 46 dms. 200 pks.	
Christiansand, 1 ck.	
Copenhagen, 3	
Drontheim, 3 260 dms.	
Dunkirk, 1 cs.	
Gothenburg, 3	
Fiume, 4	
Hamburg, 61 3	
New York, 100	
Odessa, 450	
Rouen, 26	
Rotterdam, 16 24	
Stettin, 105	
Taganrog, 62	
Trieste, 4	
Pitch—	
Antwerp, 243 t.	
Dunkirk, 32	
Libau, 12 c.	
Odessa, 500 cks.	
Size—	
Copenhagen, 2 cks.	
Flushing, 18	
Soap—	
Christiania, 30 cs. 5 bls.	
Drontheim, 30	
Gothenburg, 4	
Tallow—	
Flushing, 5 cks.	
Tar—	
Amsterdam, 12 cks.	
Copenhagen, 15	
Danzig, 2	
Hamburg, 16	
Odessa, 30	
Stettin, 12	
Varnish—	
Antwerp, 7 cs. 4 cks.	
Christiania, 1	
Copenhagen, 8 1	
Drontheim, 3	
Flushing, 2	
Hamburg, 30 1	
Rotterdam, 5	
Stettin, 2 dms. 2	

GLASGOW.

Week ending April 6th.

Acid—	
Bombay, 346 t. 12 c.	£1,975
Ammonium Chloride—	
Gijon, 5 t. 11¼ c.	£100
Ammonium Sulphate—	
New York, 50 t. 19¾ c.	£663
Nantes, 27 10	288
Bleaching Powder—	
Hong Kong, 15 t.	£112
Boric Acid—	
Rouen, 6 t. 4¼ c.	£234
Borax—	
Rouen, 3 t. 9¼ c.	£62
Caustic Soda—	
New York, 10 t. 2 c.	£95
Coal Products—	
Aniline Dyes	
Calcutta, £24	
Anthracene	
Rotterdam, 56 cks.	£275
Benzol	
Rotterdam, 60 pns.	£480
Creosote Oil	
New York, 28 t. 6 c.	£45
Pitch	
Gijon, 767 t. 16 c.	£1,036
Bombay, 85 17	135
New York, 1,005	
Tar	
New York, 29 t. 16 c.	£60

Cottonseed Oil—	
Rotterdam, 6 brls.	£30. 10s.
Cream of Tartar—	
Chili, 5 c.	£24
Dyestuffs—	
Indigo Extract	
New York, 7 t. 5½ c.	£180
Logwood Extract	
Portland, Me., 1 t. 3¼ c.	£47
Lead Acetate—	
Halifax, 1 t. 1½ c.	£27
Linseed Oil—	
Cape Colony, 5 t. 9¼ c.	£121
Portland, Me., 4 5¼	93
Paint—	
New York, 4 t. 11 c.	£93
Chili, 16	366
Paint and Painters' Colours—	
Cape Colony, £108	
Painters' Colours—	
Cape Colony, £20	
Natal, 28	
Singapore, 5 t. 2¾ c.	58
Hong Kong, 2 ¾	37
Portland, Me., 1 5¼	30
Rotterdam, 80 dms.	58
Paraffin Wax	
Cape Colony, 10 t. 14¾ c.	£326
Rouen, 2 7¼	72
Gijon, 1 19¾	48
Japan, 2 17	51
Nantes, 30 4¼	776
Potassium Bichromate—	
Japan, 1 t. 1¼ c.	£43
Portland, Me., 5 9¼	253
Rotterdam, 41 cks.	572
Potassium Prussiate—	
Rouen, 5 t. 7½ c.	£320
Rosin Oil—	
Cape Colony, 9 t. 2 c.	£50
Amsterdam, 25 brls.	50
Saltcake—	
Baltimore, 201 t. 12 c.	£403
Soap—	
Cape Colony, 2 t.	£15
St. John's, Nfld., 19 c.	22
New York, 7 12¼	120
Soda Ash—	
Baltimore, 51 t. 12 c.	£258
New York, 175 8	821
Sodium Bichromate—	
Rouen, 21 t. 13¼ c.	£709
Sulphuric Acid—	
Bombay, 11 t. 5 c.	£56
Tallow—	
Rotterdam, 25 t. 5 c.	£1,134
White Lead—	
Cape Colony, 2 t. 10 c.	£50
Japan, 1 5	28

TYNE.

Week ending April 1st.

Alkali—	
Hamburg, 10 t. 2 c.	
Bergen, 5	
Christiania, 11 5	
Rotterdam, 10 19	
Leghorn, 7 13	
Ammonia Alkali—	
Gothenburg, 10 t. 4 c.	
Ammonium Sulphate—	
Hamburg, 20 t.	
Ghent, 10	
Valencia, 50	
Anthracene—	
Rotterdam, 29 t. 15 c.	
Antimony—	
Rotterdam, 2 t.	
Arsenic—	
Hamburg, 4 t. 19 c.	
Barytes—	
Hamburg, 116 t. 2 c.	
Bleaching Powder—	
Hamburg, 59 t. 2 c.	
Antwerp, 44 18	
Christiania, 46 19	
Odense, 8 19	
Danzig, 81 4	
Rotterdam, 21 13	
Drontheim, 10	
Genoa, 2 17	
Gothenburg, 31 17	
Passages, 30	
Copenhagen, 53 14	
Carbolic Acid—	
Odense, 12 c.	

Castor Oil—	
Christiania, 10 c.	
Caustic Soda—	
Hamburg, 21 t. 15 c.	
Trieste, 9 5	
Genoa, 47 10	
Arendal, 6 7	
Christiania, 8 16	
Rotterdam, 2 18	
Ghent, 2 19	
Gothenburg, 4 18	
Copenhagen, 1 6	

Colours—	
Genoa, 4 c.	
Litharge—	
Hamburg, 2 t. 6 c.	
Copenhagen, 1 15	
Magnesia—	
Hamburg, 2 c.	
Antwerp, 4	
Copenhagen, 19	
Ochre—	
Christiania, 8 t. 13 c.	
Paint—	
Bergen, 1 t. 2 c.	
Hamburg, 12	
Pitch—	
Christiania, 37 t.	
Soda—	
Randers, 41 t. 10 c.	
Christiania, 25 4	
Odense, 38 9	
Rotterdam, 36 16	
Messina, 6	
Copenhagen, 58 10	
Soda Ash—	
Hamburg, 20 t. 15 c.	
Trieste, 19 18	
Christiania, 55 2	
Bergen, 2 19	
Gothenburg, 50	
Sodium Hyposulphite—	
Hamburg, 10 t. 5 c.	
Christiania, 16	
Sodium Sulphate—	
Copenhagen, 1 t. 5 c.	
Sulphur—	
Rotterdam, 25 t.	
Drontheim, 50	
Ghent, 21	
Gothenburg, 70	
Tallow—	
Hamburg, 1 t. 3 c.	
White Lead—	
Stavanger, 1 t. 2 c.	
Naples, 10	
Gothenburg, 11	
Copenhagen, 4 5	

GOOLE.

Week ending March 22nd.

Benzol—	
Boulogne, 48 cks.	
Rotterdam, 96	
Chemicals (otherwise undescribed)	
Boulogne, 8 dms.	
Ghent, 1 tin 15 11 cks.	
Rotterdam, 50	
Coal Products (otherwise undes.)	
Antwerp, 1 ck.	
Hamburg, 133	
Rotterdam, 233	
Dyestuffs (otherwise undescribed)	
Ghent, 8 cks.	
Rotterdam, 1	
Hamburg, 25	
Boulogne, 3	
Manure—	
Dunkirk, 100 bgs.	
Ghent, 1,186	
Pitch—	
Antwerp, 728 t.	
Dunkirk, 250	
Boulogne, 35 tins.	

GRIMSBY.

Week ending March 25th.

Chemicals (otherwise undescribed)	
Antwerp, 35 cks.	
Dieppe, 48 cks. 4 pns.	
Hamburg, 4 cs.	
Coal Products (otherwise undes'd.)	
Dieppe, 116 cks.	
Malmo, 130	

PRICES CURRENT.

WEDNESDAY, APRIL 12th, 189

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£ s. d.		Lime, Acetate (brown)		£ s. d.	
Acetic, 25 % and 40 %	per cwt	7/-	11/-	" (grey)	per ton	6	0
" Glacial	"	50/-		" Magnesium (ribbon and wire)	per oz.	10	15
Arsenic S.G., 2000°	"	0	14	" Chloride (ex ship)	per ton	2	7
Fluoric	per lb.	0	0	" Carbonate	per cwt.	1	17
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	" Hydrate	per ton.	17	0
" (Cylinder), 30° Tw.	"	0	3	" Sulphate (Epsom Salts)	per ton	2	19
Nitric 80° Tw.	per lb.	0	0	Manganese, Sulphate	"	17	15
Nitrous	"	0	0	" Borate	per cwt.	2	12
Oxalic	nett	0	0	" Ore, 70 %	per ton	4	5
Phosphoric, 1750°	"	0	1	Methylated Spirit, 61° O.P.	per gallon	0	2
Picric	"	0	1	Naphtha (Wood), Solvent	"	0	3
Sulphuric (fuming 50 %)	per ton	15	10	" Miscible, 60° O.P.	"	0	4
" (monohydrate)	"	5	10	Oils:—			
" (Pyrites, 168°)	"	3	0	Cotton-seed	per ton	24	10
" 150°	"	1	5	Linseed	"	21	0
" (free from arsenic, 145°)	"	1	6	Lubricating, Scotch, 890°—895°	"	7	5
Sulphurous (solution) S.G. 1025	"	3	0	Petroleum, Russian	per gallon	0	0
Tannic (pure)	per lb.	0	1	" American	"	0	0
Tartaric	"	0	11	Potassium (metal)	per oz.	0	3
Arsenic, white powdered	nett	per ton	13	" Bichromate	per lb.	0	0
Alum (loose lump)	"	5	2	" Carbonate, 90% (ex ship)	per ton	17	5
Alumina Sulphate (pure)	"	5	0	" Chlorate	per lb.	0	0
Aluminoferic	"	2	10	" Cyanide, 98%	"	0	2
Aluminium	per lb.	0	4	" Hydrate (Caustic Potash) 80/85 %	per ton	21	10
Ammonia, Anhydrous	"	0	1	" " (Caustic Potash) 75/80 %	"	20	10
" 880=28°	per lb.	0	2	" " (Caustic Potash) 70/75 %	"	20	0
" =24°	"	0	0	" Nitrate (refined)	per cwt.	1	2
" Carbonate	nett	0	0	" Permanganate	per cwt.	3	5
" Muriate	per ton	20	0	" Prussiate Yellow	per lb.	0	0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	33/-	" Sulphate, 90 % (ex ship)	per ton	9	15
" Nitrate	per ton	39	0	" Muriate, 80 % (do.)	"	8	0
" Phosphate	per lb.	0	0	Silver (metal)	per oz.	0	3
" Sulphate (grey) London	per ton	12	12	" Nitrate	"	0	2
" " (grey) Hull	"	12	12	Sodium (metal)	per lb.	0	3
Aniline Oil (pure)	per lb.	0	0	" Carb. (refined Soda-ash) 48 %	per ton	6	0
Aniline Salt	"	0	0	" " (Caustic Soda-ash) 48 %	"	4	15
Antimony	per ton	45	10	" " (Carb. Soda-ash) 48 %	"	4	17
" (tartar emetic)	per lb.	0	1	" " (Carb. Soda-ash) 58 %	"	5	2
" (golden sulphide)	"	0	0	" " (Soda Crystals)	"	3	0
Barium Chloride	per ton	7	10	" Acetate (ex-ship)	"	17	5
" Carbonate (native)	"	3	10	" Arseniate, 45 %	"	11	15
" Sulphate (native levigated)	"	45/-	75/-	" Chlorate	per lb.	0	0
Bleaching Powder, 35 %	nett	"	8	" Borate (Borax)	net, per ton.	29	0
" Liquor, 7 %	"	3	10	" Bichromate	per lb.	0	0
Bisulphide of Carbon	"	11	15	" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	11	0
Chromium Acetate (crystal)	per lb.	0	0	" " (74 % Caustic Soda)	"	10	10
Calcium Chloride	per ton	2	5	" " (70 % Caustic Soda)	"	9	10
China Clay (at Runcorn) in bulk	"	17/6	to 35/-	" " (60 % Caustic Soda)	"	8	10
Coal Tar Products and Dyes:—				" " (60 % Caustic Soda, cream) (f.o.b.)	"	8	5
Alizarine (artificial) 20 %	nett	per lb.	0	" Bicarbonate	"	6	10
Magenta	"	"	0	" Hyposulphite	"	7	10
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	" Manganate, 30%	"	16	0
Benzol, 90 % nominal	"	per gallon	0	" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	10
" 50/90	"	"	0	" Nitrite, 98 %	per ton	27	10
Carbolic Acid (crystallised 40°)	per lb.	0	0	" Phosphate	"	15	0
" (crude 60°)	per gallon	0	2	" Prussiate	per lb.	0	0
Creosote (ordinary)	"	0	0	" Silicate (glass)	per ton	5	7
" (filtered for Lucigen light)	"	0	0	" " (liquid, 100° Tw.)	"	4	5
Crude Naphtha 30 % @ 120° C.	"	0	0	" Stannate, 40 %	per cwt.	3	5
Grease Oils, 22° Tw.	per ton	2	5	" Sulphate (Salt-cake)	per ton.	1	5
Pitch, f.o.b. Liverpool or Garston	"	1	5	" " (Glauber's Salts)	"	1	10
Solvent Naphtha, 90 % at 160°	per gallon	0	1	" Sulphide	"	8	10
" Lucigen" and "Wells" Oils	"	0	0	" Sulphite	"	6	12
Copper	per ton	44	17	Strontium Hydrate, 100%	"	8	10
" Sulphate	"	16	5	Sulphocyanide Ammonium, 95 %	per lb.	0	0
" Oxide (copper scales)	"	42	0	" Barium, 95 %	"	0	0
Glycerine (crude)	"	13	0	" Potassium	"	0	0
" (distilled S.G. 1250°)	"	43	0	Sulphur (Flowers)	per ton.	8	0
Iodine	nett, per oz.	0	0	" (Roll Brimstone)	"	6	10
Iron Sulphate (copperas)	per ton	1	12	" Brimstone: Best Quality	"	4	2
" Sulphide (antimony slag)	"	2	0	Superphosphate of Lime (26 %)	"	2	7
Lead (sheet) for cash	"	11	5	Tallow	"	32	0
" Litharge Flake (ex ship)	"	13	10	Tin (English Ingots)	"	97	0
" Acetate (white ")	"	25	15	" Crystals	per lb.	0	0
" " brown ")	"	17	10	Zinc (Spelter)	per ton	17	15
" Carbonate (white lead) pure	"	20	0	" Chloride (solution, 96° Tw.)	"	5	15
" Nitrate	"	20	0				

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

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309.

SATURDAY, APRIL 22, 1893.

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Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday**.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, to one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

Contributors are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

WHO'S TO HOLD THE BABY?

WHATEVER may be the justification for the prompt steps which have been taken during the past eighteen months in the matter of river purification, the responsibility which will fall on manufacturers, without doubt, weighs heavily in certain instances; and as the time allotted by the Joint Committee to enable manufacturers to adopt means to prevent pollution in the future begins to expire, the sense of responsibility does not become lighter.

The time which the notices served on manufacturers have to run is now very short, so that the question begins, as it were, to assume a personal shape, since those owners of works situated on the banks of the rivers will have to give an account of themselves to the Committee individually.

Now, if this responsibility could be divided amongst several, instead of resting on one, possibly some would feel easier about the matter, as, generally speaking, it is an accepted truth that there is safety in numbers.

Bleachers are among those who are likely to feel the full effects of the changes that are to be made in the quality of the effluents to be discharged into the rivers in time to come, and the latest move on the part of one large bleachworks, situated on the banks of the river, is not without significance.

We have before us a debenture prospectus, with a proposed issue of £45,000., to form a company under the title of Eden and Thwaites, Limited, to take over the Waters Meeting Bleachworks at Sharples, Bolton, now carried on by T. H. Thwaites, Esq. Though doubtless the chief object in making this alteration is quite distinct from any considerations relating to the question of river purification, yet when the situation is viewed under the newly-proposed conditions, it would not be very surprising if the movement was to spread in other directions up and down the water shed.

FURTHER SIGNS OF ACTIVITY.

Manufacturers, however, are not the only people who are beginning to move. During the past eight or nine days two Local Government Board inquiries have been held into the schemes proposed for Gorton and Droylesden respectively, and it now remains for the authorities in London to express their approval, or *vice versa*. The difficulty of obtaining land seems to be a general argument in favour of chemical precipitation in conjunction with mechanical filtration, and to all appearances the intentions of Gorton seem feasible enough.

There is another agency which has been at work and has brought pressure to bear on the Manchester Corporation in regard to the completion of their sewage works, we refer to the recent drought. The shortness of water in the Salford docks is about one of the best reminders to the public that there is no shortness of sewage, drought or no drought. We have tasted of the sweets which are provided for the frequenters of that neighbourhood in dry, fairly warm weather, and

more occasions than one; and they are truly likely to make a somewhat lasting impression on those who are not fortunate enough to be blessed with the gift of appreciating the beauties of a full flavoured sewage. Their existence after all will do good in one way for they will lead to even more vigorous efforts on behalf of the Corporation to get their works (which are already pretty well advanced) fully completed.

THE IMPOSSIBILITY OF CHEAPENING GAS.

Despite the hopes of those who looked to the Manchester Corporation to help in the prevention of smoke by reducing the price of gas, we were much inclined to think the answer to the request made to the gas committee would be a negative one. When the installation of the electric light in this city is completed, possibly representations may be made to the committee with a view to an alteration in price, but we fear that at present little can be done towards encouraging the use of gas for fuel by endeavouring to obtain a reduction in the price of the gas itself. The question has been taken up in several quarters of the city, and will, we believe, form the subject of further discussion by the Manchester section of the Society of Chemical Industry, with a view to arriving at something in the shape of a tangible proposition. Certainly if anything is to be done in this direction it is necessary to be in a position to back any proposal with suggestions as to ways and means. As far as it is possible to foresee at present we may not be over-sanguine in anticipating the attainment of such a position before another winter comes on.

THE GORTON SEWAGE SCHEME.

ON Saturday, 15th inst, an inquiry was held at the Court House, Gorton, by Mr. J. S. Smith, C.E., one of the Local Government Board inspectors, in reference to the application of the Gorton Local Board for powers to borrow £30,000, to deal with and dispose of the sewage of the district. Mr. Bidder, Q.C., and Mr. Sutton appeared for the Local Board, and the Manchester Corporation, whose interests are affected by the proposed scheme, were represented by Mr. Addison, Q.C., M.P., and Dr. Pankhurst.

Mr. Bidder, in explaining the scheme, said that the scheme would not only be beneficial to Gorton, but also to Manchester. The proposal was to construct intercepting sewers, and collect the sewage at the proposed sewage works. The Board were fully cognisant of the feeling of the Local Government Board that if chemical precipitation was adopted it should be followed by subsequent filtration through land. Land, however, was very dear in the district, and, moreover, of a clayey nature. They therefore proposed to put down at the works two straining or sludge tanks 73ft. square and 3ft. deep, then there were to be three precipitating tanks, each being 204ft. long by 107ft. broad and 3ft. deep, with a capacity in each case for treating 409,275 gallons of sewage. Mr. Bidder pointed out that by the original proposal a portion of one of the sewers would pass through a portion of one of the wards in the city of Manchester, but they had an alternative scheme by which this would be avoided.

Mr. J. C. Lomax gave evidence that several schemes on lines similar to those proposed for Gorton were working satisfactorily, and there were no complaints from the Mersey and Irwell Joint Committee. Owing to the industries of the district being chiefly confined to iron works and cotton mills, the sewage was of a very ordinary nature. The outfall works would consist of two sludge tanks, three precipitating tanks, and six filter beds, and they would be able to treat the whole of the combined rainwater and sewage by filtration and still have one filter bed at liberty. The precipitant to be used would be the best known, and the filtering medium would be polarite in an ordinary sand filter.

Mr. J. Carter Bell, county analyst for Cheshire and for the borough of Salford, and Dr. C. A. Burghardt, consulting chemist, detailed the results of investigations made by them as to the methods of chemically treating sewage with a view to its purification, and gave evidence in support of the case for the Local Board.

Mr. Frank Candy, civil engineer, and Mr. R. T. Holland, the clerk to the Gorton Local Board, were also examined in support of the scheme.

Mr. Allison, city surveyor, called on behalf of the Corporation. He had examined the site of the proposed works, and the result was that he did not consider it a proper site for a sewage works. The cost of removing the rubbish would be about £10,000, to the estimate, and if they decided to burn or cremate it, it in that manner at the rate of 100 tons per day would not be cleared for the works before the site would be clear for the works.

The witness was cross-examined by Mr. Bidder, and was then called for the Corporation.

Mr. Addison then addressed the Inspector on behalf of the Corporation, pointing out that his clients were bound to take every precaution to prevent the fouling of the streams or brooks which ran through the city, and to diminish the chances of flood. The Corporation was in no way hostile to a scheme which might work well.

Mr. Bidder next addressed the Inspector, chiefly pointing out that the Local Board were doing their best to deal with the sewage of the district, and stated that if the Local Government Board sanctioned their scheme without insisting on the supplementary treatment through land, they were willing to comply with that condition. The Inspector having intimated that he would view the site and the Local Government Board in due course, the proceedings were brought to a close.

PHENOLPHTHALEIN AND METHYLORANGE AS INDICATORS.

ACCORDING to M. B. Breed, in a paper just read at the chemical section of the Franklin Institute, it appears that when using phenolphthalein as an indicator in alkalimetry, there are precautions necessary that have not been sufficiently laid in the literature of the subject. The following experience will show the necessity for great care in its use.

During the standardization of a hydrochloric acid solution with normal caustic potash, phenolphthalein and methylorange were used as indicators; and it was observed that, while with methylorange 20 c.c. of the acid required only an average of 19.443 c.c. of alkali for neutralization, with phenolphthalein the same amount required an average of 19.765 c.c. of alkali, a difference which introduced a considerable error. The same results were obtained with phenolphthalein, even when the solution was heated to boiling. It was believed that carbon dioxide could not be the cause of the discrepancy. That the source of the difficulty lay with the phenolphthalein, and not with the methylorange, seemed probable from the fact that it took more alkali to bring the colour of phenolphthalein to discharge than of methylorange; and also from the fact that, in amounts of alkali used with the former varied from 19.65 c.c. to 19.85 c.c., those used with the latter were practically constant, differing only 0.025 c.c. Nothing could be found in the literature of the subject which threw any light on the problem. Fresh solutions, prepared with great care, gave analogous results, and after many fruitless attempts to explain the discrepancy, it was concluded that traces of carbon dioxide dissolved by the alkali, must after all be the source of the error. It would explain matters; for acid potassium carbonate, which is formed in the solution during titration, is neutral to phenolphthalein but alkaline to methylorange; and, therefore, as part of the alkali has been rendered neutral to phenolphthalein, it would take more alkali to affect that indicator than to affect methylorange. An explanation was proved to be correct by prolonged, hard boiling of the solution, when using phenolphthalein. Alkali was titrated in this case, and it was found that by boiling ten minutes the end point had been apparently reached, the colour could be made to reappear, and that it continued to reappear after each addition until the amount of acid used was exactly equal to that of the alkali. As the end point was approached, longer periods of boiling were necessary after each drop added. The titration never took less than an hour.

In view of this, a word of caution seems necessary. It is not safe to use phenolphthalein unless the solution is known to be free from carbon dioxide, or unless it is boiled long and hard after the end point is apparently reached. As it is nearly impossible to keep a solution of caustic alkali entirely free from carbon dioxide, titration with phenolphthalein is often as tedious as a gravimetric determination.

Phenolphthalein is probably used at present more extensively than any other indicator, but these objections make it desirable to use something more reliable and convenient. Methylorange is free from carbon dioxide, and when a sufficiently dilute solution is used the end point is sharp. It has been found very satisfactory for many years, and its accuracy, and it is therefore strongly recommended where possible to use it. In the discussion which followed Mr. H. G. G. suggested that the glass beaker may have been attacked by the alkaline solution, resulting in extraction of alkali from

the boiling was continued as long as an hour. Such action served even with Bohemian glass. The glass is said to be cracked as a whole. As regards phenolphthalein and methylorange, call attention to the statement of R. T. Thomson, extensive papers on indicators, that phenolphthalein has greater delicacy or sensitiveness than methylorange. In

in 100 c.c. of distilled water, the former requires but less of deci-normal solution while the latter requires 0.5 c.c. to produce the full change of colour. In solutions of normal difference is scarcely noticeable. He showed that this is not due to carbonic acid, but to the interference of sodium potassium, and ammonium formed during titration affect the delicacy of methylorange, but not phenolphthalein, in case of salts of ammonia. Neutral salts of calcium, magnesium have the same effect upon methylorange.

titrating calcium, magnesium and sodium carbonates, as in method of determining the hardness of waters, Mr. Haines others have also, that phenacetolin is preferable to methylorange in this case the former must be used hot, the latter cold. The alcoholic solution of phenacetolin keeps very much not filtered from the insoluble residue found in the article

Pemberton, Jr., remarked that in titrating with phenolphthalein with methylorange as indicators, different results would be obtained if the standard alkali contained alumina. This impurity is only present in sodium or potassium hydrate. Even a small amount [about 0.002 grams.] will require when methylorange is used more acid than when phenolphthalein is used.

Keiser, in reply to Mr. Haines, said that while according to Thomson, methylorange was not as sensitive as phenolphthalein, observers had found it to be more sensitive. For example, he found that from three to four times as much of a $\frac{1}{100}$ normal solution was required to bring about the change of colour with phenolphthalein as with methylorange. That is the phenolphthalein is more sensitive than the methylorange. Experiments made in the laboratory indicated that methylorange when used in the titration was fully as sensitive as phenolphthalein. The great objection, to the use of phenolphthalein in ordinary titrations is its sensitivity to carbon dioxide, and that it is neutral to acid carbonates. R. B. Warder has shown that alkaline solutions of methylorange can be decolorised by shaking them with air, and that by shaking upon the red liquid the colour is discharged. The phenolphthalein is not coloured by acid carbonates. Mr. Haines would refer to a paper by R. T. Thomson, to which he refers, that that author states that when alkaline hydroxides containing alkalis are titrated and phenolphthalein is used as indicator, it disappears when the hydroxide is neutralized and the carbonate or acid carbonate. That if the solution is then boiled the color disappears because the acid carbonate is decomposed, and more acid is added and the titration continued until the colour no longer appears in the boiling solution.

It is most impossible to prevent standard alkali solutions from becoming carbon dioxide from the air, it is evident that the strength of the solutions will constantly change if the determinations are made with phenolphthalein as the indicator. On the other hand, if the titration is made with methylorange as the indicator, the results are not affected by the amount of carbon dioxide that has been absorbed, in all ordinary work it is advisable to use methylorange.

PREPARATION OF SOME GREEN PIGMENTS.

Emerald Green.—Mix 2 parts caustic soda and 1 part chlorate of potassium; gradually add 2 parts very finely powdered manganese; heat to dull redness, then allow to cool, powder and exhaust with water and cool, and add a solution of nitrate of baryta to the violet coloured baryta precipitate forms; this is carefully washed and treated with $\frac{1}{2}$ to 1 part of caustic baryta, hydrated and heated up to redness, with constant stirring. The color cooled, and finally washed to remove any excess of baryta.

Green.—Separately dissolve 7 lbs. sulphate copper and 3 lbs. of lead, each in 5 pints water; mix the solution, stir in nitric acid, and when the mass is dry grind to powder.

Mountain Green.—(a.) Pour 3 parts saturated solution of sal-ammoniac and 2 parts copper filings, contained in a vessel capable of being heated, and keep the mixture in a warm place for some weeks, when the blue-formed pigment is separated from the unoxidized copper on a sieve; it is then washed with water and slowly dried. (b.) A solution of crude carbonate of ammonia is added to a solution of alum and blue vitriol, as long as it affects it; in the end, the precipitate is collected, washed and dried. (c.) The colors are produced by the addition of sulphate of baryta, or

Chrome or Guignet's Green.—Fuse together 3 parts of boracic acid and 1 part bichromate of potash at a dull red heat on the hearth of a flame furnace. This forms a borate of chromium and potash, with evolution of oxygen. The mass is repeatedly washed with boiling water, which causes decomposition and consequent separation of hydrated oxide of chromium and a soluble borate of potash. The oxide is washed and ground very fine.

Emerald Green.—Form a paste with one part of verdigris in sufficient boiling water, pass it through a sieve to remove lumps, and gradually add it to a boiling solution of 1 part arsenious acid in 10 parts water, the mixture being constantly stirred until the precipitate becomes a heavy granular powder, when it is filtered through calico and dried.

Manganese Green.—Intimately mix 3 to 4 parts caustic baryta moistened with water, 2 parts nitrate of baryta, and 2 parts oxide of manganese; place in a crucible heated to dull redness, fuse, pour out, pulverise, digest in boiling water, wash in cold water, and dry in an atmosphere free from carbonic acid.

Mountain Green.—(a.) Native green carbonate or bicarbonate of copper is ground to powder, either with or without addition of a little orpiment or chrome yellow. (b.) Add a solution of carbonate of soda or potash to a hot mixed solution of alum and sulphate of copper.

Prussian Green.—A mixture of Prussian blue and gamboge.

Sap Green.—(a.) The juice of buckthorn berries is extracted by allowing them to ferment in wooden tubs for seven or eight days and pressing and straining. A little alum is added to the juice, which is evaporated down to a suitable consistency and run into bladders to dry and harden. (b.) Mix 11 ounces powdered arsenious acid, $1\frac{1}{2}$ pounds carbonate of potash, and one gallon boiling water; dissolve, filter and add to another solution of two pounds crystallized sulphate of copper in three gallons of water, producing $1\frac{1}{2}$ pounds of pigment.

Scheele's Green.—Dissolve one part powdered white arsenic and two parts commercial potash in 35 parts boiling water; filter and add the solution gradually, while still warm, to a filtered solution of two parts sulphate of copper as long as a precipitate falls; wash with warm water and dry.

Parliamentary Gossipings.

MEAL HOURS IN FACTORIES.

IN the House of Commons on Thursday last week Mr. J. Burns asked the Home Secretary whether he was aware of an inquest held on the death of a work girl, Delilah Figgins, at Guy's Hospital, lately employed by Messrs. Pink, jam manufacturers, Bermondsey, and of the fact pressed at the inquest that this firm, with others, confine their employees within their works during meal hours.

Mr. Asquith:—From the verdict given at the inquest it appears that Delilah Figgins died from blood poisoning, caused by an accidental blow on the knee previous to her employment at Messrs. Pink's, and not from the inhalation of the vapour from putrid oranges. Mr. Henderson, one of her Majesty's superintending inspectors, has visited the factory of Messrs. Pink, and reports that, in his opinion, the establishment appears in all respects to be well regulated. I understand that up to a few days ago it was the rule that the women employed in the factory were kept in during the dinner hour, unless they obtained special permission to go out, but I am now informed that arrangements have been made by Messrs. Pink to allow them to leave the factory during meal times without making special application for permission to do so. I trust that other firms will follow their example. (Hear, hear.)

Mr. Burns asked whether the right hon. gentleman could not at once see his way, under Clause 65 of the Factory Act of 1878, to compel all owners of factories in London to allow the girls and women employed in them to go out during meal times.

Mr. Asquith said he would consider the point, and in answering the query on Monday last said he had no power to make such a regulation under the section in question, or under any section of the Factory Acts, but whether in common law the practice is legal was a matter on which he offered no opinion. The cases where firms require the workpeople to remain in the works during the dinner hour appeared, from inquiries he had made, not to be numerous. Such an arrangement was, in his opinion, in the interest of the health of the workpeople, much to be deprecated.

THE MANUFACTURE OF LUCIFER MATCHES.

In answer to a question by Mr. MacNeill, on Friday 14th, inst., as to the case of a young girl at present an inmate of St. Bartholomew's Hospital, suffering from phosphorus necrosis of the jaw, who up to the time of her illness was employed in the manufacture of lucifer matches at Messrs. Bryant and May's, at Bow,

Mr. Asquith said:—The girl referred to is Alice Skeeles, who was taken ill at Bryant and May's last year. The cases which had occurred previously within the last two years were visited by her Majesty's inspector, and as the result of such inquiries special rules were made, which are at present in force. Considerable alterations have been made in Messrs. Bryant and May's factory, and I have received a satisfactory report from Messrs. Henderson, Lakeman, and Vaughan, her Majesty's inspectors, who have visited the factory this week. I will inquire as to the Swiss law. The question of the use of white phosphorus is a serious one, and is being kept in view; but having regard to the improvement which has already resulted from the new rules, I propose to give them a further trial before considering the expediency of more drastic measures.

REPORT OF ROYAL COMMISSION ON MINING ROYALTIES.

In the House of Commons on Tuesday last Mr. J. W. Lowther asked the Home Secretary what was the cause of the delay in the publication and circulation of the report of the Royal Commission upon Mining Royalties, which was laid upon the table of the House on April 7th.

Mr. Asquith: The delay in the issue of this report is in consequence of the papers not having been presented yet to the House of Lords. The rule is that no paper presented to Parliament by command of her Majesty can be distributed until all formalities of presentation are complete, and the completion notified in the minutes of both Houses. I understand that the report will be presented to the House of Lords on their meeting to-day, and that it will be circulated in a few days.

Mr. Woods asked the First Lord of the Treasury whether, in view of the publication of the final report of the Commission, he would cause a number of copies to be circulated to trade organizations, whether he would give an early day for the discussion of the report, and whether and in what way the Government would give effect to the recommendations.

Mr. Gladstone: The final report of the Commissioners is not yet in the hands of the Government. We are therefore not in a position to form a judgment on the question whether it would be wise for us to take steps to have the report circulated among trade organizations. I cannot give any information as to what action the Government may take on the report.

ADULTERATION OF FOOD.

On Thursday last Mr. Egerton asked the President of the Local Government Board, whether, considering the inefficient carrying out of the Food and Drugs Act, 1875, and the Amendment Act, and the unsatisfactory results of prosecutions undertaken under their provisions, he would grant a Select Committee to inquire into the whole subject, with a view to suggesting such amendment of the Acts as would render them more workable and efficient.

Mr. Fowler replied that a bill for the purpose mentioned was now before the House. The Government proposed to concur in the second reading on the distinct understanding that the measure should be referred to a Select Committee.

Official Memoranda.

(From the Board of Trade Journal.)

COAL PRODUCTION IN AUSTRALASIA.

The following information respecting the coal production of the various Australasian colonies is supplied in recent reports by the United States Vice-Consul at Sydney:—

New South Wales.—The coal regions of New South Wales are estimated to cover an area of about 24,000 square miles, and are divided thus: The northern division, consisting of the mines in or about Newcastle, the valley of the Hunter, Hexham, East and West Maitland, Greta, and Singleton; the southern division, embracing the collieries of the south coast from Mount Kembla, Wollongong, Bulli, Clifton, and Helensburg; and the western and south-western division, formed by the mines about Lithgow, Hartley, Katoomba, Rylstone, Wallerawang, Moss Vale, and Mittagong.

In the northern division the mines are chiefly worked by shafts of from 300 to 400 feet in depth, that at Greta being 460 feet. On the other hand, almost all those of the southern division are worked by tunnels or drives, the striking exception being the Metropolitan Colliery at Helensburg, where the shaft is 1,150 feet deep, the main workings having 1,600 feet of solid sandstone above them. In the western division shafts are the rule and tunnels the exception.

The total number of persons reported as having been employed in coal-mining during 1891 in this colony is 10,820, of whom 2,102 worked above and 8,718 under ground.

Victoria.—In Victoria 22,834 tons of coal were mined, valued at £19,731., and 6,322 tons of lignite, valued at £1,000., affording employment to 260 miners. During the same period import amounted to 732,185 tons, valued at £728,925.

Victorian-produced coal costs 19s. per ton, against 14s. for imported Newcastle, the latter doing more work. Yet in the period from 1st January to 31st July of this year (1892) the way department has used some 12,000 tons of the former, amounts to a Government subsidy of 4s. 7d. per ton in the local industry.

Tasmania.—Steam coal of excellent quality is found in Tasmania, where it is now an established industry, the output of the year having been 50,519 tons, valued at £45,467. A great deal of the coal is being used in the iron industry, and has been carried on. During 1891 48 tons were raised.

Western Australia.—In Western Australia some recent years of coal have been made a short distance from the port of Perth. The seams are reported as being sufficiently good to encourage explorations. The coal is useless for gas-making, being a hard coal. Four samples assayed as follows:—

Description.	No. 1.	No. 2.	No. 3.
Volatile:—	Per cent.	Per cent.	Per cent.
Water	15.2	10.87	11.7
Gases, &c. .. .	32.46	31.47	21.83
Sulphur	2.23	2.23	2.99
Coke:—			
Fixed carbon ..	45.03	52.87	54.17
Ash	5.08	2.56	9.31

No. 1 was from the bed of the River Collie, No. 2 from 17 ft., No. 3 from a 3-ft. thick seam, and No. 4 from a seam further east.

It is clean to handle, solid, travels well without forming lumps, and is very suitable for furnaces with a sharp draught; neither clinkers nor slags; the quantity of ash is small, and little smoke.

TIN-PLATE INDUSTRY IN THE UNITED STATES.

Mr. Iva Ayer, Special Agent of the Treasury Department at Newington, in a report upon the production of tin and terne plate in the United States during the quarter ended December 31st, 1892, states that during this period 32 firms produced 19,756,491 pounds of tin and terne plates proper. The same number of firms produced 10,952,725 pounds.

Of the production of the past quarter, 6,138,739 pounds, less than one-third of the whole, were bright tin plates, 5,274,434 pounds, or about 86 per cent., consisted of the class weighing lighter than 63 pounds per 100 square feet; 1,864,305 pounds were terne plates, of which 12,684,646 pounds, or 93 per cent., belonged to the lighter class; of the entire production 91 per cent. consisted of the lighter class of plates.

The amount of American sheet iron and steel made into tin and terne plates during the quarter, as shown by sworn statements of manufacturers received to date, was 898,233 lbs., and for the previous quarter 898,233 lbs. This makes the production for the last quarter, within the meaning of the Act, 22,001,997 lbs., against 11,850,958 lbs. produced during the quarter ended September 30, 1892, and shows a total production for the months ended December 31, 1892, including the production of the previous quarter, 33,852,955 lbs.

The production of tin and terne plates proper during the months of the present fiscal year was 30,709,216 lbs., against 11,850,958 lbs. produced during the corresponding period of the previous year, the ratio of increase having been nearly as 1 to 14. The production for the last fiscal year was 13,646,719 lbs. which is considerably more than half the production during the first six months of the present year.

American black plates.—Of the production of 19,756,491 pounds of tin and terne plate proper during the past quarter, 8,043,434 pounds, or more than 40 per cent., were made from American black plates, against 5,920,082 pounds used during the previous quarter. The consumption of American plates in the production of tin and terne plates proper during the first six months of the present fiscal year was 13,963,531 pounds, or 316,812 pounds more than the total tin and terne plates proper during the first year that the industry was operative. The consumption of American plates for the same period of the first six months of the fiscal year ended June 30, 1891, was 1,986,208 pounds, the ratio of increase for the corresponding period of the present fiscal year having been as one to seven. The consumption of American plates, including articles made from tin and steel and tinned, during the first six months of the last year was 4,474,755 pounds, and for the first six months of the present year 17,107,270.

THE MODIFIED MEXICAN TARIFF.

wing is an abstract of the recent amendments of the tariff of Mexico. It should be noted that "net" weight is understood to be the actual weight of the merchandise; weight, that which includes besides the "net" weight, exterior bottles, boxes, winders, wrappers, &c., in which the imported, and by "gross" weight, the total weight of the

	Duty.
.. .. .	Gross 0'05
.. .. .	Legal 0'10
.. .. .	Gross 0'18
.. .. .	Legal 0'18
.. .. .	Legal 0'25
.. .. .	Gross 0'01
.. .. .	Gross 0'01
.. .. .	Gross 0'10
.. .. .	Legal 0'05
.. .. .	.. 0'02
.. .. .	Gross 0'01
.. .. .	Legal 0'03
.. .. .	.. 0'02
.. .. .	.. 0'04
.. .. .	.. 0'02
.. .. .	Gross 0'01
.. .. .	.. 0'01
.. .. .	Legal 2'00
.. .. .	Gross 0'02
.. .. .	.. 0'03
.. .. .	.. 0'02
.. .. .	.. 0'01
.. .. .	.. 0'01
.. .. .	Legal 0'04
.. .. .	.. 0'01
.. .. .	Legal 0'50
.. .. .	Gross 0'20

TARIFFS OF THE PORTUGUESE COLONIES.

wing is a continuation of the abstract of the new tariffs in Portuguese Colonies, commenced on page 194 of No. 305 of N.B.—1,000 Portuguese Reis = 4s. 6d.

LOANDA BENGUELA AND MOSSAMEDES.

Import Duties, Tariff A.

	Rates of Duty.
.. .. .	Reis.
.. .. .	Kilog. 20
.. .. .	.. 4
.. .. .	.. 20
.. .. .	.. 120
.. .. .	.. 50
.. .. .	Decalitre 250
.. .. .	Kilog. 10
.. .. .	.. 70

PORTUGUESE INDIA POSSESSIONS.

Import Duties, Tariff A.

	Rs.	An.	Pie.
.. .. .	Seer	0	0
.. .. .	6 % ad val.		
.. .. .	Cwt.	2	12
.. .. .	..	2	4
.. .. .	Gallon	0	6
.. .. .	Seer	0	4
.. .. .	..	0	0
.. .. .	..	0	6
.. .. .	Maund	2	8
.. .. .	Seer	0	0
.. .. .	..	0	1

wing articles are exempt from Import Duty under above tariff:—

.. .. .	Sulphate of Copper.
.. .. .	Potash Alum.
.. .. .	Cochineal.
.. .. .	Oil Cakes.
.. .. .	Platinum.
.. .. .	Silver Leaf.
.. .. .	Sulphate of Quinine.
.. .. .	Potash.

MOZAMBIQUE, &c.

Import Duties, Tariff A.

	Cape Delgado	Lourenço	Other Custom
	Reis.	Marques.	Houses.
Tar, Pitch, and Coal Tar	5 % ad val.	5 % ad val.	Kilog. 20
Lime and Cement			.. 4
Petroleum		Kilog. 20	.. 20
Phosphorus & Phosphorus Matches		.. 120	.. 120
Soap		.. 50	.. 50
Salt		.. 250	.. 250
Colours in Powder & colouring earths		.. 20	.. 10
.. prepared in any way		.. 20	.. 20

OLIVE OIL PRODUCTION IN ITALY.

According to a statistical return recently issued by the Italian Minister of Agriculture, the extent of land under olive cultivation in Italy in 1891 amounted to 2,578,675 acres, and the product of oil to 60,270,188 gallons. Of this quantity 14,000,000 gallons were exported.

The cultivation of the olive is carried on, says the French Consul at Florence, in 50 out of the 69 provinces of Italy, and in 3,214 out of the 8,253 communes. The province of Port Maurice is the one which in proportion to its extent possesses the largest quantity of olive trees, and the provinces of Lecce, Bari, Pouilles, Reggio de Calabria, and Chieti follow in the order named. As the average yield per acre depends upon the conditions of locality and soil, upon the description of olive trees and methods of cultivation, the variations in the different districts are very considerable.

Our Book Shelf.

THE YEAR BOOK OF SCIENCE. Edited by T. G. Bonney. 502 pp.; index. London: Cassell and Co., 1893.

The utility of this annual has been greatly enhanced by being promptly published this year. The delay last year, however, was unavoidable. The ground covered includes physics, chemistry, geology, and mineralogy, animal and botanical biology—the two first mentioned occupying the larger half of the book. Both subjects cover all the most interesting papers or discoveries of the year. The most noteworthy under physics are Aitken's work on cloudy condensation; Croft's communication to the Physical Society on Breath pictures; the chemical action of light and colour photography: production of electricity by waterfalls, due to friction. Again there are some fourteen abstracts of papers on the passage of electricity through gases, and several on the electrical resistance of metals.

Under physical chemistry there is an interesting paper on electro-chemistry. The principal contributions to inorganic chemistry are studies of the compounds of chlorine, oxygen phosphorus, and sulphur; Moissan's work on Boron; the chemistry of flames, and a new compound of gold and cadmium. In organic chemistry chief attention is given to benzenes, sugars, and special acids. We are quite at a loss as to why the description of Brunner Mond's process for making bleach from calcium chloride comes among the miscellaneous items under organic, in preference to inorganic chemistry. Being one of the first things those engaged in the chemical industries would look for, it is in the last place one would think of looking for the same, wedged in between diacipiperazines and the origin of colour. The Index, which is, however, very complete, helps materially to mitigate this oversight. The work is as comprehensively useful as hitherto, and admirably fulfils its mission of giving to those busily engaged in industrial pursuits a review of the advances of modern science.

SOAP MANUFACTURE. By W. Lawrence Gadd. 214 pp. 33 Illustrations, with Appendix and Index. London: G. Bell & Sons, 1893.

This work, which is published as one of Bell's Technological Handbook series, is intended principally to cover the requirements of students preparing for the examinations of the City and Guilds Institute. Its tenour is more in keeping with the class-room than the works. It does not, therefore, fill the want that exists for a treatise on soap making, written for soap manufacturers. The first few chapters treat of the theory of soap making in an efficient manner. Under the heading of "Materials," we find next a chapter on the principal oils and fats used in the manufacture of soap, and the methods in general use for obtaining seed oils from the seeds. This is followed by a good chapter on water and its softening. We note that the titration method for determining hardness is justly given the precedence over Clark's soap test.

The manufacture of general and special soaps is then described at some length, but does not contain much that is new, as far as the

manufacture is concerned. This section is carefully treated and the information well compiled, though much that is said concerning sodium silicate might, we think, have been brought under the heading of "Materials," where analyses of the other ingredients are given. Two of the most practical chapters in the book are those dealing with the recovery of glycerine and the analysis of soap. The methods of analysis give evidence of careful selection, and have stood the test of practice. The processes are not given in detail, the want of which prevents the work from being a manufacturer's handbook.

Bearing in mind the primary object of the book, however, it must be said that it is admirably suited to the requirements of the student, being well got up, precisely written, and at the same time free from superfluous technicalities and confusing elaboration.

THE PRINCIPAL STARCHES USED AS FOOD. By W. Griffiths. 60 pp.; 24 plates; index. Cirencester: Bailey and Son, 1892.

The chief feature about this little book is the plates with which it is illustrated. They consist of splendidly executed photo-micrographs. To analysts these are likely to be of great importance in assisting them in the identification of the various better known starches.

There are 24 starches in all, each being illustrated and accompanied with a short description of the starch and its origin. One great and, we believe, unique point about the plates is that they are all comparable, since all are magnified 160 times linear. On this account the plates are of exceptional merit and value to analysts, to whose notice we strongly recommend this little work, as it is likely to be of considerable use to those engaged in the examination of condiments and food-stuffs, apart from the interesting nature of the contents.

IMPORTS AND EXPORTS FOR MARCH.

THE Board of Trade returns for March, 1893, are more promising than they have been for many months past. The imports of chemicals, oils, dyestuffs, &c., are of more value than last year. The increased exports of alkali and bleaching materials are chiefly due to the growth of the shipments to the United States.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	cwt.	125,195	106,447
Copper ore and regulus.....	tons	17,180	18,104
Hides, dry and wet	cwt.	79,795	73,502
Nitrate of soda	tons	10,994	19,601
Tallow and stearine	cwt.	94,548	53,703
Tin	"	57,299	68,790

EXPORTS OF BRITISH AND IRISH MANUFACTURES

		Quantities.	
		1892.	1893.
Alkali	cwt.	527,859	688,709
Cement	tons	41,194	39,277
Coal and coke	"	2,141,591	2,410,855
Copper, all kinds	cwt.	140,627	134,560
Iron and steel	tons	218,980	220,837
Chemical manures	"	35,517	39,523
Oils, seed	"	7,793	6,684
Salt	"	50,181	56,471

TRINIDAD PITCH.

BY far the largest amount of Trinidad pitch is found in what is known as the Pitch Lake, a nearly circular area of 11,467 acres, 138 feet above sea level. From the lake the ground falls away on all sides, except, perhaps, a slight ridge to the east and southeast. In fact, it seems plain that this deposit lies in the crater of a large mud volcano which has filled up with pitch.

The crater is a flat, gently sloping mound, wooded over a large portion, open savanna elsewhere, and toward the north merely grassed over.

On the west its slopes toward the sea are gentle for some distance, but then more abrupt. On the north, toward La Brea Point, the reverse is the case, and a ravine runs, with a small stream, quite to the village, this slope being very scantily covered by a growth of coarse

grass near the lake, becoming more bushy farther on, while slopes are well wooded, with magnificent palms near the lake a beautiful band or border around it, within which is a grass about 100 to 200 feet or more in width.

As to the depth of the pitch deposits and of the crater's features have been made, but none of them seem founded on basis of fact. At some little distance from the edges pits sunk as deep as twelve feet, in which pitch has welled up to the bottom, showing that there must be some feet more of the underneath. It is impossible, or has been impracticable, to dig pits on account of the rapidity with which the pitch flows in tions, and attempts to bore were equally unsuccessful in 1886.

In past times the pitch very probably continued to rise and overflowed the rim of the crater in many directions, and it became the source of some of the land-pitch deposits now in way from the lake to the sea.

At first sight of the Pitch Lake one sees a flat dark expanse dotted here and there with large clumps of shrubs and grasses, except to the north, with a wall of palms.

On closer inspection it appears that the central portion of the lake is divided up by a network of pools, looking from a distance like low puddles of rain water. On walking over the lake, entirely possible, it will be seen that, while these pools are filled with rain water, they are deeper than would be expected, cases several feet, and, with their irregular shape, depend on the pitch is not one homogenous mass, but consists of polygonal, mushroom-like masses, which at the point where they come together form the spaces, which are filled with water.

These masses of pitch, slightly convex on the surface, are the most distinctive features of the lake surface. They range from two hundred feet in diameter, with a round, rolling top, to coalesce more or less, depending upon the hardness of the pitch which they are composed, there being a considerable difference in respect between the edges and centre of the lake. Owing to the nature in the centre there are fewer pools and shallower.

One of the most characteristic mushroom-like masses, in the central part of the lake, is an almost perfect circle of six feet in diameter. It has a convexity of one foot six and a half inches, a very regular and typical formation, being neither too soft nor too hard to retain all the evidences of a change of shape. It is the one of the domes which reveals the wavy nature of the surface caused by the dome-like masses and the depressed pools between them.

There have been several attempts made to explain the nature of these interstitial spaces without entire satisfaction, but it is the observer that each large mass has a motion of its own by lower portions are brought up and roll out from the centre to the edges.

This motion, with the aid of the water, preserves the polygonal shape of each mass and thus permits the continuous of the star-shaped pools. The rolling motion is evidenced by the edges and by sticks and other foreign substances which of the pitch and assume various angles as the mass rolls to the edge. The sticks often carry a cap of pitch which they carry away from the surface, but they never have any adherent nor will pitch adhere to wet substances. Gas bubbles which are found all through the lake pitch as they reach the surface are drawn out, with the movement of the mass toward the circumference, into fine lines, and the whole surface becomes with rings and wrinkles showing the concentric motion of the pitch. This movement or rolling motion in the pitch is especially greatest probability as due to alternate expansion and contraction of the viscous mass caused by changes of temperature between night, during the day the surface of the pitch reaching a temperature 140° F., and at night falling to between 80° or 90°, or lower, be also influenced by the continued evolution of gas in the mass.

The rain-fall of Trinidad is of tropical abundance, so that the edges, although not that of change of shape, in the mass.

Notwithstanding the motion in the mass the pitch of the entire lake is hard enough to walk over easily, and with the pitch be flaked out in semi-conchoidal masses of fifty to seventy weight. A person standing for any length of time in one place sink a slight distance, and a hole several feet deep will grow up in a few days and disappear. This takes place in a few directions, upward as well as lateral, and is well confirmed by experiment which was made at a point about three hundred feet from the edge of the lake.

Near the centre of the lake there are in some of the joints of softer pitch, some of it so soft that a boy sinks to his knees in seconds. It is not of different temperature from the hardest fact is a little cooler, owing to its surroundings, but it is of a glossy black, like gas tar, and is filled with and continually This gas near the edges of the mass is from time to time evolved with considerable violence and burns readily. It is largely sulphide and carbon dioxide. Deposits of sulphur are seen

he water is of a strong mineral character and so mixed that masses of the latter can be picked up and kneaded without its adhering to them.

At spot the evolution of gas is so rapid as to be evident even to any observer, but it undoubtedly takes place to a smaller extent all over the lake. The large conchoidal flakes of pitch for shipping reveal the fact that all the lake pitch is filled with gas cavities looking much like those in a Swiss

pitch is collected and in the laboratory allowed to stand in a warm place it will continue to evolve gas which is in fact, samples in sealed tin cans all exploded while in Trinidad, showing that a chemical reaction of considerable going on. This reaction, without doubt, continues for as long as the pitch grows harder, and in conjunction with the physical conditions may somewhat influence the movement of the pitch in the mushroom like masses.

MINERAL RESOURCES OF REVELSTOKE, BRITISH CALIFORNIA.

Following is an extract of a paper on the mineral resources of Revelstoke, British California, contributed by Mr. H. A. Holdich, well-known in Wigan and district as an assayer and metallurgist, to the *North-west Mining Review*. The district, it is highly mineralized, and the town is the most central of any in the districts of the Kootenay. Silver and lead are found in the West at Kamloops are extensive beds of coal and cinnabar is found in considerable quantities. Hot springs are numerous, and at Kalso a remarkable spring is found. This is according to the analysis of Mr. Holdich, is as follows:—

	Grains per Gallon.
Silica and alumina.....	3'20
Iron, Carbonate.....	0'56
Lime	83'50
Magnesia	12'85
Soda	5'50
Potash	0'40
Sodium, Chloride.....	1'20
Phosphoric Acid.....	Very strong traces

It is very rich in carbon dioxide, and the unusual presence of acid in conjunction with iron magnesia, and soda, indicate the value of such a water for rheumatism and nervous depression. The northern part of the district gold, copper, silver, and lead are found in considerable quantities. Coal is found at Kamloops, also iron and while the occurrence of iron pyrites is so plentiful as to be common to be mentioned, Dolomite and limestone also are found in the neighbourhood. Nickel has not as yet been definitely discovered. Chromium and tellurium have, however, been discovered in the course of his investigations. Platinum has, it is said, been found in the Spallumcheen river.

Correspondence.

We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

—It is practically of no use to us, so beg to return same with thanks. It was an accidental occurrence, and is not repeated.

ux) —We shall be glad to learn your intentions in the matter. We shall be glad to receive same when ready.

ust this week's issue.

is for explanation. We shall be glad to receive same when ready.

w) —We are obliged for your trouble in the matter we referred to you.

are not yet to hand.

a mixture of equal parts of salt, alum and washing soda, used as a

TESTING FOR "OBSCURATION."

To the Editor of the Chemical Trade Journal.)

—I should be much obliged if you could let me know the result of your testing of spirits (rum) for "obscuration" as the excise authorities. I have searched through all likely sources and have at hand in vain. I am, yours &c., C. W. H. 1, 1893.

NOTICES.

LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

Trade Notes.

PRICE OF GAS IN MANCHESTER.—The Gas Committee have decided not to recommend a reduction in the price of gas during the coming year. The committee's estimates for 1893-4 will be based upon the present price of gas, namely, within the city 2s. 6d., and beyond the city 3s. per 1,000 cubic feet.

GLASS FOR CHEMICAL UTENSILS.—According to recent researches glass which is most suited for the manufacture of beakers and other laboratory apparatus made of glass, should contain from 7'2 to 8 parts of silica, 1 part of lime, and from 1'1 to 1'5 parts of alkali. Investigation has shown that glass is more attacked by alkalies than by water, and more by water than by acids.

SHIPPING AT SALTFORT.—The barque *Ceres* from Mobile last week completed the discharge of 1,500 tons of pitch pine timber and is now ballasting. The steamer *Thracian* loaded 525 tons of salt and sailed for Harlingen. The steamers *Race Fisher* and *Pioneer* discharged respectively 600 and 650 tons of china clay from Fowey. The steamer *Alpha* discharged 539 tons of flints from St. Valery. In all seventeen vessels have discharged 2,725 tons of materials for the Ship Canal Company.

FIRE AT A TANNERY.—Just before 12 o'clock on the night of Friday last week, the extensive works of the Highfield Tanning Company, Runcorn, were found to be on fire. The flames spread with rapidity, and before the fire brigade could reach the scene the premises were one burning mass. Within an hour the upper portion collapsed, and in a remarkably short space of time the building was completely gutted. The place contained a large quantity of hides. The damage, estimated at £25,000, is covered by insurance. The cause of the outbreak is unknown.

DRAINAGE OF SWINTON.—Colonel C. H. Luard, R.E., inspector to the Local Government Board, held an inquiry at the offices of the Swinton and Pendlebury Local Board, on Friday, 14th inst., into the application of that Board for sanction to borrow £1,443 for works of sewerage. Mr. Pinfold, surgeon, explained that the Board proposed to construct a main sewer from Chorley-road, Swinton, to Dale's Brow, by way of Worsley-road, to relieve the sewer in Chorley-road during heavy falls of rain. Mr. Berry, clerk, stated that the present indebtedness of the Board on public and private works was £35,793, the rateable value of the district was £86,894, and the population 21,634. There was no opposition.

THE PRODUCTION OF QUICKSILVER IN CALIFORNIA.—During 1892 the production of quicksilver in California was greater than either 1890 or 1891, notwithstanding the fact there is a decreased demand. In 1892, 27,993 flasks were produced as against 22,300 flasks in each of the two preceding years. Of this the majority came from the four following mines:—New Almaden (which was the first mine discovered in California), produced 5,563 flasks, Napa Consolidated 5,680 flasks, the Great Western 5,867 flasks and the Morrabel (formerly the Bradford), 3,208 flasks. The average price for the year was 58 1 cents. The largest amount of quicksilver ever produced in California was turned out in 1887 and amounted to 79,369 flasks. The highest price was obtained in 1874 and 1875, when it reached 1'55 dollars per pound.

BACTERIOLOGY CLASSES.—We learn that courses in bacteriology are to be held at King's College, London, of a theoretical and practical nature. The lectures, to be delivered by Professor E. M. Crookshank, M.B., will be illustrated with lantern slides and microscopical preparations. There will be two courses, one dealing with general bacteriology, and the other with the bacteriology of fermentation, the latter being intended to meet the requirements of brewers and analysts. Fuller particulars can be obtained from R. T. Hewlett, M.D., demonstrator, Bacteriological Laboratory, King's College, London.

PRODUCTION OF POTASH AT ASCHERSLEBEN.—The large works at Aschersleben, where potash salts are produced in great quantities, turned out during 1892 as follows:—

	Metric Quintals.
Potassium chloride, 80%	127,786
„ sulphate, 90%	66,830
Potash salts for manures	4,920
Kiesesite	34,022
Magnesium chloride	4,317

A metric quintal is equivalent to 196·8 pounds avoirdupois. The net profit for the year has been 1,411,764 marks.

THE DROYLSDEN SEWAGE SCHEME.—An inquiry was held on Monday last by Mr. S. J. Smith, one of the Local Government Inspectors, into the proposed scheme for disposing of the sewage of Droylsden. It is proposed under the scheme to take the sewage to the outfall for precipitation under the polarite system. At the outfall there would be six tanks, 90ft. by 40ft., with a depth of 4ft. 6in. Each of these would hold 100,000 gallons, and they would be filled in order. The sludge would be pumped and pressed. There would be eight polarite filters, of 100 yards capacity each, and they had below these an area of three acres, which could be used as a land filter. A destructor is to be erected to dispose of the nightsoil and sludge.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is in a very despondent state notwithstanding all the efforts of the syndicate to keep prices floating. A considerable sale of 90's benzol has reached our ears during the past few days at as low as 1s. 4d. per gallon, delivered free at the purchaser's works, and the price of 50-90's is at a correspondingly low level. Other tar products remain nominally at the same rate as quoted last week, but there is so little business doing that these could hardly be reckoned as normal.

The sulphate of ammonia market is very firm indeed, notwithstanding all the efforts of the dealers to run prices down. Beekton is £12. 7s. 6d., while at other ports from £12. 12s. 6d., is the price which will have to be paid for any considerable requirements.

REPORT ON MANURE MATERIAL.

During the week there has been a good business passing, mostly for early or immediate delivery, and prices have been well maintained.

For 75·80% Florida phosphate rock 8½d. per unit now generally asked for cargoes c.i.f. to United Kingdom, but that price is above buyers' idea of value, and less would have to be taken in order to induce business.

For Peace River rock, 60%, 7d. per unit, and for hot-air-dried South Carolina rock, 55/60%, 6½d. per unit asked, but we do not hear of any business at the prices.

Nothing further reported in cargoes of River Plate bones: nominal value of anything due is probably about £4. 2s. 6d. The value of crushed Kurrachee bones on spot is £4. 5s. per ton, and for shipments due next month about £4. 2s. 6d. On spot the price of East Indian bone meal has advanced to £4. 15s., ex store; to arrive first half May £4. 10s. would be business. Common grinding bones are enquired for, and are worth £3. 15s. to £3. 17s., ex quay at Liverpool.

Nitrate of soda closes a shade easier, owing to arrivals. On spot the nearest value of fine quality is 10s. 9d., and of lowest test 10s. 4½d. per cwt.; cargoes arrived at port of call are worth 10s. 7½d. to 10s. 9d., according to size and test.

Dried blood is less enquired for, but price remains nominally unchanged.

MISCELLANEOUS CHEMICAL MARKET.

There is little change to report in the alkali trade in regard to market values. The demand for bleaching powder continues good, but the output is equal to the call, and price is still maintained at £8. nett f.o.r. makers' works, and £8. 10s. nett f.o.b. Liverpool. In alkalies there is no improvement in the tone of the market, and generally, the production seems to be rather in excess of present requirements—its effect being noticeable in the greater pressure required to make sales of alkali, and a slight disposition to cut prices. For ammonia alkali, 58%, current quotation is 1½d. f.o.b. Leblanc makes of ash, 1½d. to 1¼d. Soda crystals are dull; price unaltered. Caustic

soda in all qualities is without alteration in price. spot or early deliveries the quotations are:—77% f.o.b. £10. 10s.; 70% f.o.b. £9. 10s.; 60% cream, 60%, £8. 5s., 10 ton lots and upwards. Chlorate offers at 8¼d., and soda at 9½d. Recovered sulphur still at f.o.r. In sulphate of copper there is no change in price, enquiry. Acetate of lime, brown, has been moving more; there is a slightly firmer tendency. Other acetates are dull, as of soda is a little lower in price. Potash, caustic and salt only in moderate request, for open orders and the bulk of enquiries are at present covered. Prussiate of potash 9¼d. Crystals are firm, but without change in price, meantime. Is grades of carbolic there is good business doing at full prices. salt and oil are only in moderate demand, prices without change. White powdered arsenic is scarce for spot or early delivery price is fully £13. 10s. nett, Garston.

THE LIVERPOOL MINERAL MARKET.

The market continues generally firm. Manganese is firm. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. chloride, £15.; carbonate, £12. 10s., steady. Magnesite quiet, with probability of a further decline; raw ground, £6. calcined £12. 10s. Bauxite (Irish Hill brand) very brisk, at 1 lump 20s., seconds 16s., thirds 12s. French chalk: Arras quiet. With the conclusion of the cotton strike better trade is doing. "Angel White" brand and "Silvery." Barytes: Carbonate scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pyrites quiet. Iron ore flat, Bilbao, Irish, and Cumberland. Santander and manganiferous continue quiet. Eremberg No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. earth steady; best lump, 55s.; fine impalpable green "Emerald" ground, 80s. Scheelite, wolfram, tungstate of tungsten metal are in good demand, and prices firm. The best qualities are in good demand at full prices. Iron ore steady at £12., and metal £43. to £45. Ashes firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine sulphate (celestine) quiet. Limespar steady, especially if manufactured; old G.G.B. brand in demand at 5s. Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese fair demand. Plumbago: Spanish, £5.; best Ceylon lump quotations; Italian and Bohemian, £4. to £12. per ton. "Blackwell's" "Mineraline," £10. French mica 22s. 6d. Ground mica, £45. to £50. China clay steady, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. Runcorn. Bog ore (oxide of iron) scarce; finest quality 25s.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warr at 40s. 9d. cash. Middlesbrough 34s. 1d. cash, and Hematite cash. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s £44. 15s. to £45. 5s. cash, and £45. 5s. to £45. 12s. months. Tin steady: Straits closed at £94. 2s. 6d. to £94. cash and £88. 15s. to £89. 5s. three months. Australian cash. English ingots, £97. Lead, better: Spanish, £9. English, £9. 17s. 6d. to £10. Silesian spelter: Ordinary 6d. Nickel, 1s. 8½d. per lb. Antimony, £41. 10s. Quicksilver, £6. 15s., second hands, £6. 11s. 6d. Copper: Cape, 1½ to 1½. Copiapo, 2½ to 2¼. Libiola, 3 to 3 and Barry, 2½ to 2½. Río Tinto, 15½ to 15½; Thamis, Namaqua, 1 to 1¼; Panulcillo, 1 to 1½.

WOLVERHAMPTON, WEDNESDAY.—Business to-day ironmasters waiting for the award upon the ironworkers' question. New orders were, however, placed in some. Prices much the same as at quarterly meetings last week. Bars, £7. 10s.; merchant sorts, £6. to £6. 10s.; and boiler plates, £7. to £8., and boiler sorts £8. 10s. to £9. quiet, but better prices hoped for as the result of decreas make Derbyshire, 40s. to 43s.; Lincolnshire, 43s. Staffordshire common, 34s. to 35s.

GLASGOW, WEDNESDAY.—Market steady, with iron Scotch done at 40s. 9d. cash, also at 40s. 11d. one month with buyers at 40s. 9d. cash, and 40s. 11d. one month. 40s. 9½d. cash, and 41s. one month. Middlesbrough buyers at 34s. 1d. cash, and 34s. 3d. one month, sellers at Hematite closes with buyers at 45s. 7d. cash, and 45s. 9d. sellers 2d. dearer.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil has been sold during the week at £26. to £25. 5s., but is to-day quoted at £25. per ton transit. Salt Pond £24. Olive continues much the same, the market being quiet; prices are quoted £34. to £43. per tun, according to quality. Linseed still remains at 20s. 6d. to 21s. 6d. for Liverpool makes, but the business doing at this price is very small. Rape is hardly so firm, there being sellers of refined Stettin at 28s., and English at 27s. per cwt. Cottonseed: Liverpool refined is somewhat easier in price at 22s. 6d. to 24s. 6d. per cwt., but is very slow of sale even at the reduction. Castor oil is steady with good seconds Calcutta unaltered at $2\frac{1}{8}$ d. to $2\frac{1}{2}$ d. per lb.; first pressure French $2\frac{3}{4}$ d. to $2\frac{3}{8}$ d. Tallow is dull and the enquiry very limited. Resin meets with a fair enquiry at 3s. 10½d. on spot and 3s. 9d. to arrive. Spirits of turpentine are in sympathy with the general tone of the market, slightly easier in price at 24s. 6d. per cwt. Petroleum is not in great request at last week's prices.

COLOURS steady. Prices unaltered. Ochres: Oxfordshire, common, £10.; medium, £12.; best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—During the week markets have been very unsettled, owing, as anticipated last week, to the strike spreading to the oil millers, some mills being already closed and many others close on Saturday, unless, as expected, a settlement is made before then. Consequently the prices ruling are more nominal than real. Linseed oil has advanced 5s. per ton, and Cotton oil receded 5s. owing to some heavy contracts being completed. Prices ruling are, Linseed firm, little doing, spot 19s. 6d., and to August; forward 18s. 6d. last four months. Cotton oil steady, spot naked 20s. 7½d. for refined, forward May-August 21s. 3d., crude 19s. 6d. Rape oil brown in casks 22s. 9d. nearest value. Olive oils according to quality, £34. to £40. per tun. Turpentine 24s. 3d. Petroleum jelly 26s. 6d. per cwt.; for orange and white from 50s. to 56s. per cwt. in bulk quantities.

CAKES.—The market here is in the same position as oils owing to the strike, stocks are fast becoming exhausted, consequently orders are being sent to other markets. Linseed cakes are unchanged in value, very little stock. Cotton cakes are firm at £5. 10s. to £5. 15s. for best makes, and very few to be had.

PAINTS.—Business here is very good, being about the only trade unaffected by the strike, except as regards the inconveniences of transit and supply of oils for paint making. Prices are:—Dry colours, Venetian Red, £6. to £10. per ton; oxide of iron, £9. to £18.; (French J.C.) ochre 60s.; fine linseed oil putty, £6.; ready-mixed paints, according to make, 28s. to 30s. per cwt.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are moving away better, but prices are very little altered. Bleaching powder still firm at £8. 5s. per ton softwoods. Soda crystals £2. 12s. 6d. per ton, locally, though lower for special ports. Rather more enquiry for sulphur.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. 8s. per ton, 52%, £4. 15s. per ton, 56%, £5. 2s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton net; aluminate of soda, £33. 15s. per ton net; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton net.

South Durham salt unchanged at 9s. 1d. per ton, f.o.b. Tees.

Coals: Trade is quiet, though steam coal business is still fairly steady. Best Northumbrian, 8s. 6d. per ton; second qualities, 8s.; small steam, 3s. 3d. to 3s. 6d. per ton; household and manufacturing coals dull and in poor demand; bunker coals depressed, owing to large number of idle steamers; coke fairly steady at 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Bleaching powder keeps steady to the price now for some time ruling, and it is quite as firm in every respect as it has been. Chlorate of potash is in slightly improved enquiry, but the market, as regards the rest of the common chemicals, continues quite without animation, although without any fall in price.

Mineral oils and paraffins are all very quiet, but with no further ebbing of market values as yet, at least so far as the divulged transactions are concerned. One of the swift Clyde passenger boats begins this week the use of oil fuel instead of coal, and if the experiment is even so moderately successful as to show a cost about the same, though perhaps fractionally higher, the market for the heavier grade oils will have a better prospect before it. Sulphate of ammonia has not lost anything during the week, and indeed is perceptibly firmer, quoting for prompt over £12. 10s., and selling more freely for forward at £11. 10s. Nitrate of soda also is firmer.

The hopes of the Dundee whaling owners, with regard to a new source of whale oil and bone in the South Arctic Ocean, have been finally dashed, news from the fleet announcing that not a whale of the right sort could be seen. It was seals or nothing, so the ships filled with seals accordingly and started for home.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 2s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. nett Tyne; bleaching powder, £8. 5s. nett Tyne; salteake, 25s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4½d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3¾d. nett f.o.b. Glasgow); chlorate of potash, 9d., less 5% Liverpool; nitrate of soda, 10s. 9d.; sulphate of ammonia, spot £12. 10s. to £12. 11s. 3d. f.o.b. Leith; salammmoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 865°, £3. 15s., to £4.; 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 12,567 bags.

New Companies.

Norwood Chemical Works, Ltd.—CAPITAL, £1,000. in £1. shares. The object of this company is to manufacture and deal in chemicals, oils, colours, pigments, varnishes, paint, etc.

Ridge Field Brick Company, Ltd.—CAPITAL £6,000. in £5. shares. This company has been formed to purchase and work certain beds of clay or seams of clay, sand, in Great Britain and Ireland, and to make brick, tiles, and pipes, etc. The subscribers to the Memorandum of Association are:—W. W. Macray, Castleford, Yorks, gentleman; J. Horne, Castleford, Yorks., engineer; G. D. Gould, Wakefield, solicitor; T. H. Wordsworth, Wakefield, solicitor; J. Whitworth, Wakefield, cashier; W. E. Wilson, Wakefield, solicitor's clerk; W. Wordsworth, Wakefield, gentleman.

Hull and Yorkshire Water-Softening Syndicate, Ltd.—CAPITAL, £6,000. in £10. shares. This company has been formed to acquire a certain patent and invention for improvement in softening and purifying water. The subscribers to the Memorandum of Association are:—C. T. Orford, South Sea House, E.C., solicitor; H. E. Masters, 30, Childeric Road, S.E., gentleman; R. M. Fabris, 15, Hyde Park Mansions, gentleman; L. L. Woodhouse, St. John's Wood, shipbroker; D. Stuart, 11, Queen Victoria Street, E.C., engineer; C. E. Masterman, C.E., Gunnersbury, W.; E. G. Capon, Staines, gentleman.

Deakins, Ltd.—CAPITAL, £200,000. in 10,000 ordinary and 9,800 preference shares, both classes of £10. each, and 2,000 deferred shares of £1. each. This company has been formed to carry on the business

Cream of Tartar—

France,	12 pkgs.	E. W. Carling & Co.
Holland,	26	Middleton & Co.
Italy,	12	G. S. N. Co.
"	10	Fellows, Morton & Co.
France,	5	M. Ashby, Ltd.
"	2	S. Hanson, Son & Co.
"	18	B. & F. Wf. Co., Ltd.
"	1	Maconochie Bros.
"	10	C. F. Gehardt
Spain,	27	W. C. Bacon & Co.
"	15	C. Christopherson & Co.
"	5	H. R. Boyer

Dextrine—

Germany,	27 pkgs.	B. & N. Wf. Co., Ltd.
"	6	Elkan & Co., Ltd.

Dyestuffs—

Alkanet Root		
Italy,	8 pkgs.	M. D. Co.
Anthracene		
France,	37 pkgs.	Burt, Boulton & Co.
Argols		
Italy,	38 pkgs.	Thames S. T. & L. Co., Ltd.
Cape,	4	Hammond & Co.
"	50	Brown & Elmslie
Cochineal		
Canaries,	12 pkgs.	Johnson Hicks & Co.
"	7	Swanston & Co.
Cutch		
Rangoon,	735 pkgs.	Candall & Co.
"	800	W. H. Cole & Co.
"	200	Wallace Bros.
"	200	W. E. Bott & Co.

Extracts

France,	3 pkgs.	Prop. Chmbln.'s Wf.
Norway,	1	Johnson & Jorgensen
Canada,	120	A. J. Humphrey
U. States,	25	J. Graves
France,	50	L. J. Levinstein & Sons
"	10	Bennett S. S. Co.
Denmark,	33	Bailey & Le tham
U. S.,	7	J. Fullwood & Bland
U. S.,	50	W. Burton & Sons
Fustic		
Jamaica,	116 t.	W. & S. Bowditch
"	115	Anderson, Anderson & Co.
"	5	J. Hales, Caird & Co.

Gambler

E. I.,	632 pkgs.	Beresford & Co.
"	336	R. & J. Henderson

Indigo

Colon,	36 chts.	Patry & Pasteur
"	16	Chalmers, Guthrie & Co.
E. I.,	19	L. & I. D. Jt. Co.
"	4	J. Hatton, Hall & Co.
"	95	R. Von Glehn & Sons
"	13	Benecke, Souchay & Co.
"	55	Arbuthnot, Latham & Co.
"	39	W. Brandts Son & Co.
"	8	Oldemeyer & Hadenfelt
Manila,	14	S. Figgis & Co.
E. I.,	198	Wallace Bros.
"	22	Forbes, Forbes & Co.
"	5	A. B. Curtis & Co.
Germany,	2	L. & I. D. Jt. Co.

Moss

France,	45 pkgs.	Hernu Peron & Co.
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Myrabolams

E. I.,	1,573 pkgs.	Baxter & Hoare
"	432	Lucas & Spencer's Wf.
"	305	J. Graves
"	1,500	L. & I. D. Jt. Co.

Orchella

Ceylon,	16 pkgs.	Prop. Sun Wf.
"	9	L. & I. D. Jt. Co.

Saffron

Spain,	1 pkg.	C. Brumlen & Sons
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Safflower

E. Indies,	11 pkgs.	Brown & Elmslie
"	29	Lewis & Peat

Sumac

Italy,	750 pkgs.	J. Graves
"	50	J. Knill & Co.
"	210	Beresford & Co.
"	1,400	J. Kitchin, Ltd.
"	300	G. S. N. Co.
"	419	Galbraith, Pembroke & Co.
"	42	Saddington & Co.
"	100	Deering & Robottom
"	25	W. Isted
"	150	Sollas & Sons

Tanners' Bark

Adelaide,	49 t.	Beresford & Co.
E. Indies,	1	Tatham, Bromage & Co.
Natal,	17	A. & W. Nesbitt
U. States,	2	B. & N. Wf. Co., Ltd.
"	34	L. & I. D. Jt. Co.

Turmeric

E. Indies,	250 pkgs.	Hoare, Wilson & Co.
"	95	Major & Field
"	530	L. & I. D. Jt. Co.
"	354	Clarke & Smith
China,	150	Union L. Co., Ltd.

Valonia

Austria,	50 t.	Boucher, Mortimore & Co.
"	268	Hicks, Nash & Co.
"	458	A. & W. Nesbitt
"	10	Culverwell, Brooks & Co.
"	58	Adam Bros
A. Turkey,	25	Beresford & Co.
"	50	Whitstable Shipping Co.

French Chalk—

Austria,	£120	Magee, Taylor & Co.
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Glucose—

U. States,	50 pkgs.	290 c. J. Keiller & Son
"	150	900 Pillow, Jones & Co.
France,	640	640 J. Barber & Co.
U. States,	50	306 D. Thomas
"	75	412 Soundy & Sons
"	1,450	1,450 Barrett, Tagant & Co.
"	949	5,220 Prprs Chmbln.'s Wf.
"	50	300 Union Lighterage Co.
"	670	1,529 R. G. Hall & Co.
"	370	680 L. Sutro & Co.
"	155	847 T. M. Duché & Sons
"	250	250 Anderson Weber & Co.
"	600	600 Boake, Roberts & Co.
"	150	862 Prop. Scott's Wf.

Iodine—

Germany,	8 pkgs.	A. Gibbs & Son
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Lead Acetate—

Germany,	4 pkgs.	Beresford & Co.
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Manure—

Germany,	200 t.	J. Gibbs & Co.
"	50	F. W. Berk & Co., Ltd.
France,	194	A. Hagan
"	200	Odams Chemical Manure Co.
N. Russia,	24	A. Hunter & Co.
"	64	Ross & Deering

Mica—

E. Indies,	£865	W. M. Smith & Sons
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Nitro-Toluol—

Holland,	6 pkgs.	Hernu, Peron & Co.
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Ochre—

France,	148 sks.	J. & T. Seddon
"	180 cks.	Blundell, Spence & Co.
"	41	W. Harrison & Co.
Holland,	4	Phillips & Graves

Painters' Colours—

Germany,	51 pkgs.	Phillips & Graves
Belgium,	39	T. Palmer
France,	18	Flaggellott & Co.
"	2	Hernu, Peron & Co.

E. Indies,

U. States,	1 cs.	L. Archard
"	105 brls.	M. Ashby, Ltd.
Melbourne,	15 pkgs.	W. Isted
"	6	Steinhoff, Sons, & Co.
Holland,	5	W. H. Carey & Sons
Germany,	64	Poth, Hille & Co.
"	29	T. H. Lee
"	12	L. & I. D. Jt. Co.
"	3	H. Lambert
"	3	Craven & Co.
"	100	W. Fenton
"	7	Hernu, Peron & Co.
"	100	H. Brorsen
"	3	Steinhoff, Sons, & Co.
Holland,	3	Phillips & Graves
"	2	J. Barber & Co.
Germany,	2 cks.	Haefner, Hilpert & Co.
"	2	Magee, Taylor & Co.
U. States,	10 pkgs.	Williams, Torrey & Co.
"	4	Pickford & Co.
Holland,	2	Rosenberg, Loewe & Co.

Paraffin Wax—

U. States,	285 brls.	H. Hill & Sons
"	100	C. Ogleby & Co.
"	3,413 pkgs.	J. H. Usmar & Co.
"	150 brls.	Mordant & Co.
"	110 pkgs.	Williams, Torrey & Co.
Pearl Ash—		
France,	103 c.	Petri Bros.
Phosphate Rock—		
France,	427 t.	A. Hunter & Co.
B. W. I.,	250	London Phosph. Syndicate
Holland,	251	T. Farmer & Co.
Belgium,	225	Lawes Chemical Manure Co.
France,	100	West & Penrose
"	115	Lawes Chemical Manure Co.
"	302	Anglo Contl. Guano Works
Belgium,	130	F. C. Hills & Co.
Plumbago—		
Ceylon,	66 brls.	Beresford & Co.
"	40	Marshall & French
Potash—		
France,	20 c.	Petri Bros.
U. States,	320	Charles & Fox
Potassium Bicarbonate—		
Holland,	90 c.	A. & M. Zimmermann
Potassium Carbonate—		
France,	800 c.	A. Bales & Co.
"	113	J. A. Reid
Germany,	200	Pillow, Jones, & Co.
France,	60	Spies, Bros. & Co.
Potassium Fluoride—		
Germany,	1 pkg.	Grimwade, Ridley & Co.
Potassium Permanganate—		
Germany,	10 pkgs.	H. Lorenz
Belgium,	10	T. Palmer
Potassium Sulphate—		
France,	131 pkgs.	Petri Bros.
"	5	F. W. Berk & Co., Ltd.
Rosin—		
U. States,	500 brls.	Moore & Hole
Saltpetre—		
E. Indies,	289 bgs.	L. & I. D. Jt. Co.
"	1,454	Perkin & Homer
Germany,	115 cks.	P. Hecker & Co.
Sodium Acetate—		
France,	30 pkgs.	H. Lorenz
"	18	S. F. Waters & Co.
Soda Crystals—		
Holland,	200 c.	Middleton & Co.
Sodium Nitrite—		
Germany,	6 pkgs.	C. Faust & Co.
Sodium Sulphate—		
Germany,	186 pkgs.	F. Boehm

Stearine—

Belgium,	127 lbs.	H. Hill & Sons
U. States,	10	W. Meyerstein
"	20 cks.	Beresford & Co.

Sulphur—

Italy,	5 t.	J. Kitchin, Ltd.
"	50	W. C. Bacon & Co.
"	19	A. Gibbs & Sons
"	200	H. S. Smith & Co.
"	5	J. Houghton & Sons
"	15	F. C. Devon & Co.
New Grenada,	100	A. Hunter & Co.
Italy,	11	Fuerst Bros.
"	11	F. Smith
"	20	Hyslop & Symonds
"	15	T. T. Creed

Tallow—

Sydney,	1,029 cks.	Pillow, Jones & Co.
"	150	Hoare, Wilson & Co.
"	200	Phillips & Graves
"	142	Goad, Rigg & Co.
Queensland,	200	Phillips & Graves
"	54	Anning & Cobb
"	260	Goad, Rigg & Co.
"	34	N. Z. L. & M. A. Co.
New Zealand,	56	Flack, Chandler & Co.
"	173	J. Greig
"	74	R. Brooks & Co.
"	155	Brown & Elmslie
"	61	Culverwell, Brook & Co.
Melbourne,	464	Elkan & Co.
"	79	Arnati & Harrison
"	171	Cuthbert & Hall
"	70	Anning & Cobb
Cape,	9	Price's Candle Co.
Sydney,	267	Austin, Meat Co.
"	20	Perkins & Homer
"	59	G. H. Frank
"	190	Kump & Eckenstein
"	212	A. Frey & Co.
"	426	Horne & Co.
"	183	Sollas & Sons
"	106	Arnati & Harrison
"	118	H. Hills & Sons
"	200	J. Greig
"	458	Phillips & Graves
"	108	Hicks, Nash & Co.
"	198	A. B. Curtis & Co.
"	152	Flack, Chandler & Co.
U. States,	10	L. & I. D. Jt. Co.

Tallow and Stearine—

U. States,	25 cks.	P. W. Richardson
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Tartaric Acid—

Holland,	18 pkgs.	Middleton & Co.
"	17	B. & F. Wf. Co., Ltd.

Tin Oxide—

Germany,	3 pkgs.	H. Lambert
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Turpentine—

N. Russia,	52 brls.	Chiesman & Co.
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Ultramarine—

Belgium,	13 pkgs.	Leach & Co.
"	3	W. Harrison & Co.
Germany,	2	H. Brooks & Co.
Holland,	10 cs.	Hernu, Peron & Co.

White Lead—

France,	49 cks.	W. Harrison & Co.
"	10	J. Watt & Son
Germany,	10 cs.	Groscurth & Luboldt
"	25 cks.	M. Ashby, Ltd.
Holland,	20	Burrell & Co.
"	40	A. & M. Zimmermann
Belgium,	30	Ross & Deering
"	12 brls.	O'Hara, Matthews & Co.

Zinc Oxide—

Germany,	25 cks.	M. D. Co.
"	25	J. Matton
"	50 brls.	M. Ashby, Ltd.
U. States,	100	"

LIVERPOOL.

Week ending April 6th.

Acetic Acid — Rotterdam, 1 cks. 19 bbls.	
Acid — Havre, 1 bbl. Cunard S. S. Co., Ltd.	
Antimony — Volo, 79 bgs. 3/4 t. G. G. Blackwell	
Antofagasta, 114 G. A. Witt	
" 802 Hainsworth, Watson & Co.	
Barytes — Antwerp, 25 cks.	
Benzine — New York, 1,000 brls.	
Bone Meal — Bombay, 2,972 bgs.	
Carbolic Acid — Hamburg, 7 cks. 1 cs.	
Castor Oil — Marseilles, 3 cs.	
Chemicals (otherwise undescribed) Marseilles, 8 cks.	
Chrome Ore — Volo, 250 t. G. G. Blackwell	
Colours — Rotterdam, 31 brls. 19 cs. 49 cks.	
Ghent, 4 J. T. Fletcher & Co.	
Cream of Tartar — Barcelona, 4 cks.	
Rotterdam, 11 30 kgs.	
Dyestuffs — Argols Oporto, 25 cks. German Bank, London	
Divi Divi Amsterdam, 125 bgs. Browne, Geveke & Co.	
Extracts Bordeaux, 20 cks.	
Marseilles, 200	
Ghent, 25	
Fustic Bremerhaven, 3,437 ps.	
Gambier Singapore, 8,928 bls. 153 bgs.	
Myrabolams Bombay, 100 bgs. D. Sassoon & Co.	
Sumac Larnaca, 5 bls. Cyprus Co., Ltd.	
Turmeric Bombay, 95 bgs. D. Sassoon & Co.	
Valonia Patras, 103 t. 10 c. Paypayanni & Jeremias	
Syra, 305 bgs.	
Smyrna, 336 t. Barry Bros.	
" 1 bg.	
Farina — In transit, 25 cs. Cunard S. S. Co., Ltd.	
Rotterdam, 50 bgs.	
Glucose — New York, 100 brls.	
Hamburg, 100 cks.	
Limestone — Antwerp, 2 crts. J. T. Fletcher & Co.	
Litharge — Rotterdam, 16 cks.	
Naphtha — New York, 4,081 brls.	
Nitrate — Rotterdam, 8 cks.	
Ochre — Marseilles, 93 cks.	
Paint — New York, 10 cks. Lightbound & Aspinwall	
" 25 kgs.	
Boston, 90 cs. M. Collet	
" 7 cks.	
" 21	

Paraffin Seale — Philadelphia, 350 cs. 825 brls.	
Phosphate — Antwerp, 174 t.	
Pitch — Rotterdam, 20 cks.	
Plumbago — Hamburg, 6 cks.	
Potash — Rouen, 49 cks. Co-op	
Dunkirk, 15 cks. W'sale Society, Ltd.	
Potassium Carbonate — Hamburg, 35 cks.	
Pyrites — Huelva, 1,966 t. Matheson & Co.	
Salt — Hamburg, 2,500 bgs.	
Saltpetre — Hamburg, 4 cks.	
Soap — N. Orleans, 1,000 brls. S. Garfield	
Marseilles, 1,200 cs.	
Soda — Rotterdam, 52 brls.	
Stearine — Rotterdam, 30 cs.	
Antwerp, 3 bgs.	
In transit, 50	
Tallow — Philadelphia, 10 hds. 60 tcs.	
Tartar — Bordeaux, 16 cks.	
Tartaric Acid — Rotterdam, 10 kgs. 12 cks.	
Ultramarine — Bremerhaven, 20 cks.	
Rotterdam, 3 22 pkgs. 13 cs.	
Yarnish — Boston, 20 kgs. 9 cs.	
In transit, 50	
White Lead — Rotterdam, 37 cks.	
Antwerp, 8	
Ghent, 6	
Zinc Ashes — Marseilles, 13 bgs.	
Zinc Oxide — Antwerp, 100 brls.	
Rotterdam, 100 cks.	

HULL.

Week ending April 8th.

Acetic Acid — Rotterdam, 10 pks. W. & C. L. Ringrose	
Barytes — Rotterdam, 48 cks. Blundell, Spence & Co.	
Bremen, 22 Veltmann & Co.	
42 H. F. Pudsey	
Antwerp, 21 20 bgs. Bailey & Leatham	
" 42 H. F. Pudsey	
Rotterdam, 205 Hutchinson & Son	
Chemicals (otherwise undescribed) Hamburg, 212 cks. Wilson, Sons & Co., Ltd.	
Stettin, 9 cs.	
Bremen, 5 Storry, Smithson & Co.	
Antwerp, 25 pks. Wilson, Sons & Co., Ltd.	
Dunkirk, 6	
Colours — Rotterdam, 32 pks. 1 ck. G. Lawson & Sons	
Danzig, 5 Wilson, Sons & Co., Ltd.	
Amsterdam, 2 cks. W. & C. L. Ringrose	
Rotterdam, 5 2 cs. 27 pks. "	
Stettin, 20 bgs. "	
Gothenburg, 10 Wilson, Sons & Co., Ltd.	
Flushing, 10 7 cs. "	
Bremen, 31 1 Veltmann & Co.	
" 20 Sissons Bros. & Co.	
Antwerp, 217 pks. Wilson, Sons & Co., Ltd.	
Rotterdam, 29 5 cs. Hutchinson & Son	
Antwerp, 2 brls.	

Cryolite — Copenhagen, 2 cks. Wilson, Sons & Co., Ltd.	
Dextrine — Stettin, 200 bgs. Wilson, Sons & Co., Ltd.	
Dyestuffs — Alizarine Rotterdam, 57 brls. G. Lawson & Sons	
" 73 pks. W. & C. L. Ringrose	
Flushing, 13 cks. Wilson, Sons & Co., Ltd.	
Myrabolams Bombay, 5,563 bgs.	
Valonia Smyrna, 637 t.	
Farina — Danzig, 100 bgs. Wilson, Sons & Co., Ltd.	
Harlingen, 2,100	
Stettin, 100 Wilson, Sons & Co., Ltd.	
Ghent, 124 cs. "	
Dunkirk, 4 cks. "	
Glucose — New York, 770 brls.	
Rotterdam, 40 bgs. Hutchinson & Son	
Stettin, 505 pks. Wilson, Sons & Co., Ltd.	
Kaolin — Rotterdam, 274 bgs. Reckitt & Sons	
Lime — N. York, 1,266 bgs. Wilson, Sons & Co., Ltd.	
Manganese — Rotterdam, 3 cks. W. & C. L. Ringrose	
Manure — Ghent, 250 t. Wilson, Sons & Co., Ltd.	
Mica — Christiania, 5 cs. Wilson, Sons & Co., Ltd.	
Ochre — Rouen, 1 ck. Rawson & Robinson	
Paint — Boston, 90 cs. Wilson, Sons & Co., Ltd.	
New York, 173	
Haugesund, 1	
Paraffin — New York, 458 bgs. Wilson, Sons & Co., Ltd.	
Phosphate — Antwerp, 510 bgs. Wilson, Sons & Co., Ltd.	
Dunkirk, 100	
Potash — Dunkirk, 62 pks. 18 cks. Wilson, Sons & Co., Ltd.	
Rosin — Hamburg, 10 bgs. Wilson, Sons & Co., Ltd.	
Salt — Hamburg, 2 qty. Bailey & Leatham	
" 20 t. G. Hardy & Co.	
Saltpetre — Hamburg, 4 brls.	
Antwerp, 135 bgs. Wilson, Sons & Co., Ltd.	
Soda — Christiania, 1 bg. Wilson, Sons & Co., Ltd.	
Antwerp, 4 cks. Bailey & Leatham	
Talc — Bordeaux, 80 bgs.	
Tallow — New York, 60 pks. 25 cks. Wilson, Sons & Co., Ltd.	
" 60 hds.	
Tartar — Bordeaux, 2 cks. Rawson & Robinson	
Tartaric Acid — Rotterdam, 2 cks. Hutchinson & Son	
Turpentine — Libau, 103 brls.	
Ultramarine — Rotterdam, 2 cks. Gibson Bros.	
" 2 Storry, Smithson & Co.	
" 2 Hirst, Brook & Hirst	
" 4 Todd & Sons	
Varnish — New York, 35 brls. Wilson, Sons & Co., Ltd.	

Waste Salt — Hamburg, 1,398 bgs. Bailey & Co.	
White Lead — Rotterdam, 12 cks. Sisson Bros.	
" 9 Bailey & Co.	
Antwerp, 79	
Rotterdam, 45	

GLASGOW.

Week ending April 13th.

Acetate of Lime — New York, 1,178 bags.	
Alkali — Hamburg, 10 cks.	
Aniline Colours — Hamburg, 20 cks. 3 cs.	
Barytes — Rotterdam, 38 cks. 31 cs.	
Barytes Sulphate — Antwerp, 20 cks.	
Boracic Acid — Leghorn, 9 cks.	
Castor Oil — Bombay, 55 cks.	
Chemicals (otherwise undescribed) Rotterdam, 12 cks. J. Raul	
Colours — Rotterdam, 6 cs. 13 cks. J. Raul	
Antwerp, 8	
Rotterdam, 12	
Hamburg, 10 tins. 22	
Cream of Tartar — Bombay, 20 cks.	
Dyestuffs — Alizarine Rotterdam, 27 brls. J. Raul	
" 8 cks.	
Extracts Antwerp, 2 cks.	
Baltimore, 10 brls.	
Madder Bombay, 8 cks.	
Sumac Palermo, 550 bags.	
Glucose — New York, 100 brls.	
Farina — Hamburg, 100 bgs.	
Phosphates — Antwerp, 2,500 bags.	
Pitch — Bombay, 12 cks.	
Pyrites — Huelva, 1,741 t. Thos. Co., Ltd.	
Rosin — New York, 501 lbs.	
Sodium Acetate — Antwerp, 19 cks.	
Sulphur — Girgenti, 450 t. T. Lott	
Palermo, 600 bags.	
Tannin — Hamburg, 14 cks.	
Tartar — Bordeaux, 12 cks.	
Tartaric Acid — Bombay, 4 cks.	
Varnish — New York, 10 brls.	
Waste Salt — Hamburg, 508 bgs. 212 cs.	
Zinc Ashes — Bordeaux, 149 bags.	
Zinc Oxide — Rotterdam, 25 cks. J. Raul	

TYNE.

Week ending April 13th.

Alum Earth — Hamburg, 45 cks. Tyne	
Colours — Antwerp, 2 brls. Tyne	
Cryolite — Copenhagen, 134 cks.	
Limestone — Antwerp, 6 cs. Tyne	

		GOOLE.				GRIMSBY.	
Paint—		<i>Week ending March 29th.</i>		Madder		<i>Week ending April 1st.</i>	
Hamburg, 4 cks.	Tyne S. S. Co.			Rotterdam, 1 ck.			
Saltpetre—				Dyestuffs (otherwise undescribed)		Caoutchouc—	
Hamburg, 3 cks.	Tyne S. S. Co.			Boulogne, 39 brls. 10 cs. 39 pkgs.		Hamburg, 4 pkgs.	
Superphosphate—						Antwerp, 2 cs.	
Antwerp, 200 bgs.	Tyne S. S. Co.					Chemicals (otherwise undescribed)	
Tartaric Acid—						Rotterdam, 2 pkgs.	
Rotterdam, 4 cks.	Tyne S. S. Co.					Hamburg, 7	
Ultramarine—						Farina—	
Rotterdam, 1 ck.	Tyne S. S. Co.					Hamburg, 106 bgs.	
Hamburg, 4 cks.	"					Zinc Ashes—	
White Lead—						Hamburg, 16 cks.	
Antwerp, 2 brls.	Tyne S. S. Co.					Antwerp, 15	
Zinc Oxide—							
Antwerp, 25 brls.	Tyne S. S. Co.						

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.							
<i>Week ending April 12th.</i>							
Acids—		Caustic Soda—		Copper Sulphate—		Sheep Dip—	
Singapore, 16 cs.	£16	Rockhampton, 1 t. 1 c.	£51	Melbourne, 5 t.	£80	Halifax, 2 cs.	£10
Alkali—		Mauritius, 8 14	130	Genoa, 12	192	Calcutta, 20 drs.	12
Wellington, 1 t. 10 c.	£11	Sydney, 5	8	Konigsberg, 1 4 c.	39	Sydney, 50	150
Melbourne, 13	30	Algoa Bay, 11	16	Batoum, 28 7	460	Natal, 100	142
Alum—		Chemicals (otherwise undescribed)		Santos, 10	10	Brisbane, 13	14
Rabat, 2 t. 13 c.	£15	Adelaide, 5 kgs.	£21	Wellington, 1 14	36	Soda—	
Batoum, 20	110	Natal, 2 14 cs.	57	Bordeaux, 10	160	Cape Town, 12 c.	£5
Saffo, 10	36	Copenhagen, 3 1 ck.	62	Oporto, 2	45	Kingston, 17	4
Aluminous Cake—		Citric Acid—		Rhems, 10 2	174	Freemantle, 1 t. 13	6
Calcutta, 36 t. 18 c.	£110	Rotterdam, 6 c.	£51	Dunedin, 1 10	23	Soda Ash—	
Ammonia (Liquid)—		Oporto, 83	50	Otago, 3	46	Townsville, 5 t. 4 c.	£28
Colombo, 5 pkgs.	£42	Brussels, 7	50	Cream of Tartar—		Sydney, 1 19	7
Dusseldorf, 10 cyls.	28	Sydney, 5	39	Townsville, 3 c.	£13	Soda Crystals—	
Cologne, 6	15	Antwerp, 1 t.	160	Wellington, 1 t. 8 cs.	121	Pt. Elizabeth, 1 t. 3 c.	£5
Berlin, 12 dms.	11	Genoa, 2 9	394	Adelaide, 1 10	129	Sulina, 11	3
Ammonium Carbonate—		Odessa, 15	135	Napier, 1 4	78	Sodium—	
N. Video, 5 c.	£7	Malaga, 2	17	Melbourne, 1	78	Melbourne, 1 cs.	£10
Santos, 20 cs.	30	Hamburg, 2 10	395	Disinfectants—		Sodium Acetate—	
Melbourne, 2	10	Coal Products—		Brisbane, 1 cs.	£15	Melbourne, 1 t.	£19
Ammonium Sulphate—		Alizarine	£30	Calcutta, 25 kgs.	7	Sodium Bicarbonate—	
Ghent, 133 t. 18 c.	£1,503	Boston, 2 cks.	£30	Melbourne, 2 5 cks.	51	St. John's, N. F. 10 c.	£4
Ostend, 118 10	1,445	Aniline	£50	Brisbane, 13	64	Auckland, 3 t.	17
Hamburg, 449 10	5,198	New York, 1 brl.	£50	Guano—		Sodium Bisulphite—	
Rotterdam, 150	1,555	Melbourne, 1 cs.	10	Genoa, 25 t.	£250	Sydney, 6 cks.	£17
Barbadoes, 50	510	Aniline Oil		Lead Acetate—		Sulphur—	
Dunkirk, 8 2	100	Rotterdam, 12 drs.	£375	B. Ayres, 9 c.	£12	Lisbon, 670 brls.	£131
Arsenic—		Aniline Salt		Manure—		Sulphuric Acid—	
Otago, 22 pkgs.	£8	Boston, 41 cs.	£580	Gothenburg, 250 t. 10 c.	£701	Hong Kong, 15 c.	£10
Barium Nitrate—		Anthracene		Hamburg, 39 5	140	Tartaric Acid—	
New York, 4 t. 19 c.	£86	Dusseldorf, 100 cks.	£505	Townsville, 5 18	75	Brisbane, 17 c.	£85
Bleaching Powder—		Rotterdam, 100	504	Trinidad, 285 14	664	Gibraltar, 1	8
Penang, 4 t. 1 c.	£56	Benzol		S. Thomas, 2 10	30	Wellington, 3 cs.	18
Cape Town, 40 drs.	24	Hamburg, 58 drs.	£582	Rouen, 20	120	Sydney, 1 t. 10	147
Borax—		Treport, 12 cks.	317	Bordeaux, 20	155	Melbourne, 10	50
Oporto, 11 c.	£16	Calais, 100	317	Charente, 17 19	83	Tartaric and Citric Acids—	
Brisbane, 11	34	Rotterdam, 143 18 drs.	899	Demerara, 5 8	13	Calcutta, 4 cs.	£61
Batoum, 15	23	Carbolic Oil		Jersey, 1	13		
Hamburg, 8 6 cks.	67	Rotterdam, 9 t. 15 c.	£241	Copenhagen, 10	8		
Brussels, 1 t. 8	40	Philadelphia, 10 cs.	£103	Phosphoric Acid—			
Otago, 112	112	Naphtha		Philadelphia, 17 c.	£95		
Boric Acid—		Singapore, 1 cs.	£7	Potash—			
Oporto, 10 cks.	£20	Brussels, 18 brls. 22 cks.	85	Philadelphia, 4 c.	£13		
Melbourne, 3 c.	7	Melbourne, 10 drs.	12	Boston, 19	119		
Carbolic Acid—		Sydney, 20	22	M. Video, 5 drs.	9		
Trieste, 5 t. 12 c.	£40	Naphthaline		Oporto, 2	28		
Rotterdam, 10 15	501	Hamburg, 9 cks.	£33	Potash Salts—			
Hamburg, 12 10	250	Copenhagen, 11	22	Natal, 50 t. 9 c.	£6,035		
Rio de Janeiro, 10 cks.	58	Pitch		Potassium Cyanide—			
Odessa, 38 cs.	825	Rotterdam, 564 t.	£776	Melbourne, 1 c.	£10		
Genoa, 1 2	42	Hochfield, 284	361	Potassium Chlorate—			
Barcelona, 2 4	127	Alexandria, 550 brls.	171	Genoa, 1 t.	£64		
Treport, 2 17	109	Dunkirk, 1,545	2,181	Philadelphia, 1	92		
Libau, 5 10	134	Christiana, 82 pkgs.	32	Salammoniac—			
Melbourne, 50 drs.	45	Boston, 100 cks.	51	Sydney, 12 t.	£250		
Carbon Bisulphide—		Tar		Varna, 2 16 c.	88		
Sydney, 140 drs. 20 pkgs.	£93	Algoa Bay, 20 cks.	12	Bourgas, 9	14		
Monte Video, 26	23	Toluol		Paris, 5 8	174		
Melbourne, 29	15	Boulogne, 30 runs.	£117	Batoum, 1 10	50		
Caustic Potash—		Rotterdam, 10 puns.	95	Gothenburg, 1 2	36		
Melbourne, 9 drs.	£106	Hamburg, 27 cks.	91	Saltcake—			
		Coal Products (otherwise undes.)		Ghent, 60 t.	£90		
		Sydney, 10 drs.	£14	Saltpetre—			
		Boston, 2 pkgs.	19	Gothenburg, 1 t.	£21		
		Malta, 50 cks.	30	Gibraltar, 7 10 c.	153		
		Copperas—		Melbourne, 2	45		
		Bahia, 9 t. 19 c.	23	Bahia, 12	12		

LIVERPOOL.

Week ending April 12th.

Alum—		Alum Cake—	
Calcutta, 16 t. 10 c.	£99	Calcutta, 4 t. 17 c.	£15
Beyrout, 1	5	Ammonia—	
Varna, 2 4	11	Bombay, 13 c.	£11
Montreal, 1 1	6	Ammonium Carbonate—	
Trebizonde, 3 12	18	Canada, 1 t.	£26
Samsoun, 2 10	12	Barcelona, 1 2 c.	27
Galatz, 2 1	10	Marseilles, 6	8
Alexandria, 1 15	10	Genoa, 10	14
Oporto, 2	12	Oporto, 10	14
		Copenhagen, 5	7
		Hamburg, 9 3 q.	14

Ammonium Chloride—

Genoa, 2 t. 19 c. 2 q. £57
Philadelphia, 11 12 1 232

Ammonium Sulphate—

New York, 353 t. 19 c. £4,113
Barcelona, 50 3 534
Valencia, 76 8 943
Antwerp, 2 2 q. 25
Baltimore, 102 16 1,285
Demerara, 49 16 2 557
Genoa, 10 1 129
Teneriffe, 2 25
Gd. Canary, 2 26
Bordeaux, 19 2 509
Charlottetown, 1 15 25
Dunkirk, 5 3 2 70
Ghent, 31 695

Aniline Colours—

Shanghai, 25 cs.

Aniline Salts—

Barcelona, 24 cs. 20 brls.
Constantinople, 3

Arsenic—

New York, 50 t. 11 c. £685

Bleaching Powder—

Boston, 417 cks.
Calcutta, 154 cs.
New York, 678 10 bxs. 41 tcs.
Oporto, 10
Santilla, 16 brls.
Baltimore, 361
Chicago, 20
Genoa, 34 kgs.
Hamburg, 88
Odessa, 300
Rosario, 5 cs.

Bones—

Gr. Canary, 1 t. £5

Borax—

Rotterdam, 22 t. 11 c. 1 q. £602
Antwerp, 24 10 1 738
Stettin, 3 6 1 100
Hamburg, 5 12 2 170
Vera Cruz, 1 15 40
Piræus, 15 23
Constantinople, 10 14
Halifax, 10 14
Copenhagen, 2 1 62
Alexandria, 6 2 q. 10
Newfairwater, 1 1 3 70
Sydney, 1 36
Sagua la Grande, 4 1 6

Calcium Chloride—

New York, 11 t. £26
Boston, 23 18 c. 49

Carbolic Acid—

Rio de Janeiro, 12 c. £16
Bombay, 2 t. 10 15
New York, 27 8 1,378
Rouen, 2 16 176
Hioho, 1 1 39. 59
Odessa, 12 3 36
Philadelphia, 2 16 120
Rotterdam, 10 157

Caustic Potash—

New York, 10 c. £13
Havre, 2 t. 2 48
Chicago, 5 1 120

Caustic Soda—

Algiers, 110 dms.
Alicante, 34
Alexandria, 30 kgs.
Baltimore, 794 270 brls.
Callao, 40
Charlottetown, 15
Galatz, 250
Hamburg, 400
Hioho, 200
Leghorn, 36
Nantes, 19
San Francisco, 250
Seville, 85
Sydney, 195
Valdivia, 45
Genoa, 30
Aracajau, 10
Bahia, 15
Barcelona, 150 80
Boston, 360
Brisbane, 64 40 bxs.
Chicago, 200
Constantinople, 11
Antwerp, 32
Coquimbo, 12
Fiume, 185
Genoa, 30
M. Video, 75
New Orleans, 138
New York, 953 210 10 45 pkgs.

Odessa, 100

Oporto, 90

Portland, Me., 25

Samarang, 55

Talcahuano, 97

Trinidad, 7

Valencia, 30

Chemicals (otherwise undescribed)

Colombo, 10 c. 3 q. £8
Beyrout, 10 c. 16
Malra, 1 t. 12 3 53
Christiana, 5 8
Hamburg, 5 8
Philadelphia, 12 17 282
Bombay, 2 20

Citric Acid—

Piræus, 1 c. £27

Copperas—

Bombay, 16 t. 5 c. £29

Callao, 3 4 6

Copper Sulphate—

Hamburg, 53 t. 10 c. £847
Antwerp, 25 4 3 q. 390
Piræus, 1 19 31
Lisbon, 23 370
M. Video, 2 9 40
Genoa, 10 10 3 160
Naples, 17 4 250
New York, 71 14 1,147
Bordeaux, 322 1 5,077
Rouen, 30 480
Copenhagen, 19 15
Oporto, 16 6 1 277
B. Ayres, 6 3 2 93
Rosario, 19 3 16
Venice, 55 9 1 823
Fiume, 20 3 291

Cottonseed Oil—

Monterey, 440 brls.

Disinfectants—

Brindisi, 4 cs. £10

Baltimore, 40 dms. 20

Dried Blood—

New York, 51 t. 3 c. 2 q. £477

Las Palmas, 17 1 10

Dye-stuffs—

Extracts

Boston, 75 cks.

Philadelphia, 10

New York, 25

Epsom Salts—

Bombay, 100 kgs.

Opobo, 4 2 cs.

Guano—

Valencia, 136 t. 1 c. 2 q. £568

Alicante, 1 2 8

Barcelona, 1 2 8

Glycerine—

Bombay, 9 c. 1 q. £16

Linseed Oil—

Progresso, 125 drms.

Santiago, 240

Calcutta, 10

Callao, 35

Constantinople, 25 brls.

Curacao, 10 46

Guayaquil, 50 5

Havana, 200

Hong Kong, 500

Ibrail, 40 5

Loanda, 10

Monrovia, 15

Pacasmayo, 24 5 10 hds.

Para, 50 7

Pisagua, 7 2

Rangoon, 22 10

Santa Cruz, 6

Santos, 4 t. 11 c. 1 q. £5

Sulina, 9 10 8

Syra, 6

Lime—

Antigua, 4 t. 11 c. 1 q. £5

Aocra, 9 10 8

Magnesia—

New York, 32 pkgs.

Manure—

Gd. Canary, 10 t. £40

Charlottetown, 16 46

Muriatic Acid—

Manaos, 2 c. £5

Nitric Acid—

Caldera, 3 c. £10

Ochre—

E. London, 100 brls.

Oxalic Acid—

Trinidad, 3 t. 4 c. 2 q. £7

Trieste, 1 15 1 35

Paint—

Bilbao, 2 bxs.

Calcutta, 220 kgs.

Callao, 53

Curacao, 20

Demerara, 70

Genoa, 3 dms. 1 cs.

Kustendjie, 3 cks.

La Guayra, 3

Malra, 20

Manaos, 240 10

Monrovia, 8 4

Pacasmayo, 3

Para, 2 brls.

Progresso, 10

Santa Cruz, 25

Santiago de Cuba, 5

Savanna, 3 20 cs.

Singapore, 4

Syra, 50

Vera Cruz, 40

Painters' Colours—

Boston, 2 cks.

B. Ayres, 55 25 cs.

Bahia, 2 hds. 19 34 brls 1 t.

Baltimore, 485 5 pkgs.

Bombay, 7

Calcutta, 20

Galatz, 20

Halifax, 4 4 100 bgs.

Hamburg, 10

Havana, 8 400

Hong Kong, 200 kgs. 11 tcs.

Honolulu, 8

Leghorn, 24

Lisbon, 98

London, Ont., 3 dms.

Marseilles, 25 4 brls.

M. Video, 15 10

New York, 6 11

Oporto, 24

St. John's, Nfld., 3

Valparaiso, 25

Paraffin Wax—

Genoa, 3 cs. 50 bgs.

Pernambuco, 15

Bombay, 3

Genoa, 60 100

Phosphorus—

Shanghai, 10 cs. £100

Potassium Bichromate—

Constantinople, 1 t. £43

Yokohama, 2 c. 6

Potassium Carbonate—

Baltimore, 4 t. 3 c. £105

Potassium Chlorate—

New York, 49 t. 15 c. £3,955

Gothenburg, 7 9 496

Hioho, 14 813

Rosario, 2 10 197

M. Video, 5 20

Corunna, 10 42

Rotterdam, 3 177

Christiania, 4 10 279

Cape Town, 1 59

Antwerp, 1 70

Ghent, 10 35

Philadelphia, 2 10 141

Hamburg, 2 10 113

Bari, 10 28

Venice, 10 28

Boston, 7 10 423

Naples, 1 55

Potassium Sulphate—

Charlottetown, 1 t. £12

Salt—

Akassa, 40 t. 6 1/4

Axin, 200

Brisbane, 200

B. Ayres, 50 cs.

Monrovia, 15

Toronto, 45 1/2

Vera Cruz, 10

Abonnema, 12

Antwerp, 150

Bakana, 43 1/2

Banoki, 5

Benin, 10

Boston, 465

Buguma, 85

Calcutta, 487

Cameroons, 50

Cape Coast, 12 1/2

Chicago, 100

Degama, 20

Ghent, 200

Hamburg, 128

Isles de Los, 25

Kansas City, 65

Mandiji, 9

Montreal, 130

Mussuco, 29 9 c.

Newcastle, N.B.K., 196 t.

Opobo, 100 t.

Port Natal, 150

Quebec, 800

Rio de Janeiro, 2 19 c.

St. John's, Nfld., 400

Saltpond, 12 1/2

San Francisco, 501 12

Savannah, 298

Shanghai, 15 1/2

Trinidad, 26 1/2

Salammoniac—

Smyrna, 1 t.

Newfairwater, 1 2 c. 19

Philadelphia, 3 1 10

Trieste, 1 1 1 10

Madras, 1 1 1 10

Saltcake—

Baltimore, 268 t. 13 c.

Philadelphia, 347 17

Saltpetre—

Savanna, 8 c. 1 q.

St. John, 5

Santos, 1 t. 4 2

Para, 12

Pernambuco, 2 17 1

Teneriffe, 1 1 3

Bahia, 1 1 2

Halifax, 10

Sheep Dip—

Galveston, 2 t. 15 c.

Valparaiso, 5 15

Belize, 8

New York, 4

Soap—

Alexandria, 19 brls.

Benin, 250 brls.

Bombay, 25 cs.

Bonny, 50

Brussels, 400

Calcutta, 45

Cape Coast, 4

Genoa, 200

Gibraltar, 400 72

Soda Crystals—		
Boston,	667 brls.	
Algoa Bay,		5 kgs.
Constantinople,	50	
Galen,		34
Halifax,	40	
Portland, M.,	67	
Syracuse,	30	
Windsor,	50 cks.	

Sodium Biorate—		
Portland, M.,	13 brls.	

Sodium Bicarbonate—		
Calcutta,	250 kgs.	
Seville,	100	
Algoa Bay,	15	
Amsterdam,	15 cks.	
Antwerp,	51	
Bombay,	1,241	
Bordeaux,	70	
Cape Town,	25	
Christiansund,	70	
E. London,	70	
Havana,	30	
Israil,	20	
Kingston, Jam.,	40	
Kurrachee,	330	
Syracuse,		10 brls.
Valencia,	150	
Galatz,	22	
Halifax,	125	
Malaga,	10	
Marseilles,	85	
Naples,	50	
Rotterdam,	27	

Sodium Carbonate—		
New York,	280 brls.	

Sodium Chlorate—		
Antwerp,	42 kgs.	
Hamburg,	40	10 brls.
New York,	130 kgs.	

Sodium Hyposulphite—		
Mexico,	142 brls.	

Sodium Silicate—		
New York,	50 cks.	
Barcelona,	70 brls.	
Madeira,	6	
Wellington,	10	

Sodium Sulphate—		
Bombay,	50 bgs.	

Sulphide of Iron—		
Galatz,	2 t. 14 c.	£7

Sulphur—		
Halifax,	100 t. 4 c.	£386
Clantham, N.B.,	460	10
Boston,	100	1
Philadelphia,	89	2
St. John,	5	3 q.
Bombay,	2	10
Calcutta,	14	18
Rouen,	20	2

Sulphuric Acid—		
Kurrachee,	2 t. 17 c.	£15

Superphosphate—		
Las Palmas,	10 t.	£32

Superphosphate of Lime—		
Valencia,	100 t.	£297

Tar—		
Pennang,	18 t. 4 c.	
Bahia,	50 brls.	
Genoa,	5 cks.	

Tin Crystals—		
Trinidad,	13 c. 2 q.	£45

Terpentine—		
Calcutta,	200 drms.	£47

Varnish—		
Halifax,	1 brl.	
Lisbon,	13 drms.	
Leghorn,	2 cs.	

Zinc Chloride—		
Bosario,	10 c.	£10
Bombay,	18 t. 2	3 q. 180

HULL.

Week ending April 8th.

Alkali—		
Libau,	100 kgs.	
Ammonium Sulphate—		
Antwerp,	250 bgs.	
Gothenburg,	100	
Ghent,	872	
Benzol—		
Rotterdam,	24 cks.	

Bleaching Powder—		
Bombay,	38 cks. 133 drms.	
Flushing,	22	
Genoa,	13	
Hango,	122	

Borax—		
Naples,	2 cks.	

Caustic Soda—		
Bombay,	52 drms.	
Hango,	17	10 cks.
Libau,	48	

Chemicals (otherwise undescribed)		
Antwerp,	26 cs.	
Bombay,	1,609 cks.	10 pks.
Christiana,	1	6
Gothenburg,	25	888 lbs.
Genoa,	6	
Hango,	50	
Hamburg,	13	20
Leghorn,	2	
Libau,	90	31
New York,	40	
Reval,		85 pks.
Rotterdam,	26	16

Cottonseed Oil—		
Antwerp,	318 c.	
Amsterdam,	36	
Bremen,	100	
Christiana,	3	
Flushing,	372	
Gothenburg,	68	
Hamburg,	903	
Leghorn,	50	
Marseilles,	202	
Naples,	68	
Rotterdam,	1,662	

Creosote—		
Christiana,	30 cks.	
Hamburg,	13	

Dyestuffs (otherwise undescribed)		
Christiana,	25 bls.	
Hamburg,	2 cks.	
Reval,	13	
Rotterdam,	1	

Linseed Oil—		
Bombay,	236 c.	
Christiana,	286	
Drontheim,	274	
Christiansand,	28	
Genoa,	52	
Hango,	31	
Hamburg,	133	
Rotterdam,	204	

Manure—		
Drontheim,	735 brls.	

Mica—		
Hango,	1 cs.	

Mineral White—		
Harlingen,	200 bls.	
Rotterdam,	300	

Naphtha—		
Amsterdam,	12 cks.	
Ghent,	22	

Painters' Colours—		
Antwerp,	43 cks. 20 pks.	
Bergen,		1 cs.
Bombay,	16	2,126 169
Christiana,		105
Christiansund,	1	68
Drontheim,		3
Flushing,	1	
Gothenburg,	1	23
Genoa,	55	
Hango,		32
Harlingen,	2	
Hamburg,	6	
Leghorn,	25	
Marseilles,	32	
New York,	410	
Reval,	17	

Pitch—		
Antwerp,	380 t.	
Naples,	16	

Rosin—		
Bombay,	60 cks.	
Christiana,	60	

Soap—		
Rotterdam,	40 cs.	

Tallow—		
Bombay,	27 cks.	
Rotterdam,	43	

Tar—		
Amsterdam,	210 cks.	
Hamburg,	6	

Varnish—		
Antwerp,	9 cs.	
Bergen,		1 ck.
Bombay,		150 drms.
Hamburg,	2	
Naples,	10	1

GLASGOW.

Week ending April 13th.

Ammonia—		
Bordeaux,	10 t.	
Ammonium Sulphate—		
Valencia,	207 t. 11¼ c.	£3,468
Christiana,	5	65
Benzol—		
Rotterdam,	20 puns.	£9½
Bleaching Powder—		
Sydney,	99½ c.	£41
Melbourne,	119¼	48½

Caustic Soda—		
Calcutta,	4½ t.	£242

Chemicals (otherwise undescribed)		
Straits,		£64

Creosote Oil—		
Cette,	477 t. 15 c.	£1,510
Christiana,	25 brls.	

Cresylic Acid—		
New Fairwater,	10 t.	£33

Epsom Salts—		
Bombay,	10½ t.	£42

Linseed Oil—		
Sydney,	20 c.	£26
Straits,	44½	55

Litharge—		
Rotterdam,	2 cks.	£8

Manure—		
Valencia,	251 t. 11¼ c.	£1,900
Straits,	5	3

Oxalic Acid—		
Boston,	10 t. 3½ c.	£250

Painters' Colours—		
Alexandria,	4 t. 15 c.	£54
Straits,		136
Philippines,		71

Paint—		
Bombay,	8 t. 19½ c.	

Paraffin Wax		
Sydney,	280 c.	£275
Bombay,	32½	61
Japan,	20 t. 3	402
New Fairwater,	203	208

Phosphate Meal—		
Alexandria,	10 t.	£50

Pitch—		
Oporto,	100 t. 4 c.	£135
Clarente,	200	200
Bombay,		42
New Fairwater,	103	176
Danzig,	150	
Bordeaux,	1,500	

Potassium Bichromate—		
Oporto,	5 t. 15¼ c.	£229
Gothenburg,	7	295
Rotterdam,	12 cks.	192

Potassium Chloride—		
Bilbao,	9 t. 19¼ c.	£100

Rosin—		
Bombay,	4 t. 4¼ c.	£20

Sulphuric Acid—		
Straits,		£21
Philippines,	4¼ t.	21

Tar—		
Madras,		£35
Calcutta,	487½ c.	85
Bombay,		38½
Christiana,	20 brls.	9
Straits,		102
New Fairwater,	1,482	746
Danzig,	500	

Tar Oil—		
Rotterdam,	12 brls.	£100

Ultramarine—		
Boston,	10 c.	£45

Varnish—		
Alexandria,	70 glns.	£24

White Lead—		
Sydney,	378 c.	£407
Amsterdam,	8 cks.	13

TYNE.

Week ending April 8th.

Alkali—		
Amsterdam,	62 t. 15 c.	
Ammonium Chloride—		
Danzig,	4 t. 19 c.	

Ammonium Sulphate—

Hamburg,	40 t.	
Dunkirk,	10	

Arsenic—		
Leghorn,	1 t. 19 c.	

Barium Binoxide—		
Dunkirk,	10 t. 11 c.	

Barium Carbonate—		
Hamburg,	43 t.	

Bleaching Powder—		
Danzig,	187 t. 11 c.	
Copenhagen,	1	12
Amsterdam,	20	
Ghent,	10	19
San Francisco,	35	19

Caustic Soda—		
Leghorn,	4 t. 10 c.	
Hamburg,	5	10
Melbourne,	7	7
Danzig,	50	9
Copenhagen,	2	6
Ghent,	5	2

Copperas—		
Copenhagen,	5 t. 5 c.	

Litharge—		
Copenhagen,	2 t. 3 c.	

PRICES CURRENT.

WEDNESDAY, APRIL 19th,

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—

		£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	&	11/-
" Glacial	"			50/-
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 3/4
Nitrous	"	0	0	1 3/4
Oxalic	nett	0	0	3
Phosphoric, 1750°	"	0	1	2 1/2
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" " 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	6	0
Sulphurous (solution) S.G. 1025	"	0	0	0
Tannic (pure)	per lb.	0	1	2
Tartaric	"	0	0	11 3/4
Arsenic, white powdered	nett per ton	13	10	0
Alum (loose lump)	"	5	2	6
Alumina Sulphate (pure)	"	5	0	0
Aluminoferrous	"	2	10	0
Aluminium	per lb.	0	4	0
Ammonia, Anhydrous	"	0	1	2
" 880=28°	per lb.	0	0	2 1/2
" =24°	"	0	0	1 3/4
" Carbonate	nett	0	0	3 3/4
" Muriate	per ton	20	0	0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
" Nitrate	per ton	39	0	0
" Phosphate	per lb.	0	0	10 1/2
" Sulphate (grey) London	per ton	12	11	3
" (grey) Hull	"	12	10	0
Aniline Oil (pure)	per lb.	0	0	6 1/4
Aniline Salt	"	0	0	6 1/4
Antimony	per ton	45	10	0
" (tartar emetic)	per lb.	0	1	0
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	7	10	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	45/-	to	75/-
Bleaching Powder, 35 %	nett	8	0	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	to	35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	7
" 50/90	"	0	1	5 1/2
Carbolic Acid (crystallised 40°)	per lb.	0	0	7 1/2
" (crude 60°)	per gallon	0	2	6
Creosote (ordinary)	"	0	0	1
" (filtered for Lucigen light)	"	0	0	1 1/4
Crude Naphtha 30 % @ 120° C.	"	0	0	10
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	"	1	5	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	1
" Lucigen " and " Wells " Oils	"	0	0	1 1/4
Copper	per ton	44	15	0
" Sulphate	"	16	5	0
" Oxide (copper scales)	"	42	0	0
Glycerine (crude)	"	13	0	0
" (distilled S.G. 1250°)	"	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	11	0	0
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white ")	"	25	15	0
" brown ")	"	17	10	0
" Carbonate (white lead) pure	"	20	0	0
" Nitrate	"	20	0	0

Lime, Acetate (brown)	per ton	6		
" (grey)	"	10		
Magnesium (ribbon and wire)	per oz.	0		
" Chloride (ex ship)	per ton	2		
" Carbonate	per cwt.	1		
" Hydrate	per ton	17		
" Sulphate (Epsom Salts)	per ton	2		
Manganese, Sulphate	"	17		
" Borate	per cwt.	2		
" Ore, 70 %	per ton	4		
Methylated Spirit, 61° O.P.	per gallon	0		
Naphtha (Wood), Solvent	"	0		
" Miscible, 60° O.P.	"	0		
Oils:—				
Cotton-seed	per ton	24		
Linseed	"	21		
Lubricating, Scotch, 890°—895°	"	7		
Petroleum, Russian	per gallon	0		
" American	"	0		
Potassium (metal)	per oz.	0		
" Bichromate	nett per lb.	0		
" Carbonate, 90 % (ex ship)	per ton	17		
" Chlorate	per lb.	0		
" Cyanide, 98 %	"	0		
" Hydrate (Caustic Potash) 80/85 %	per ton	21		
" (Caustic Potash) 75/80 %	"	20		
" (Caustic Potash) 70/75 %	"	20		
" Nitrate (refined)	per cwt.	1		
" Permanganate	per cwt.	3		
" Prussiate Yellow	per lb.	0		
" Sulphate, 90 % (ex ship)	per ton	9		
" Muriate, 80 % (do.)	"	8		
Silver (metal)	per oz.	0		
" Nitrate	"	0		
Sodium (metal)	per lb.	0		
" Carb. (refined Soda-ash) 48 %	nett per ton	6		
" (Caustic Soda-ash) 48 %	"	4		
" (Carb. Soda-ash) 48 %	"	4		
" (Carb. Soda-ash) 58 %	"	5		
" (Soda Crystals)	"	3		
" Acetate (ex-ship)	"	16		
" Arseniate, 45 %	"	11		
" Chlorate	per lb.	0		
" Borate (Borax)	net, per ton	29		
" Bichromate	per lb.	0		
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	11		
" (74 % Caustic Soda)	"	10		
" (70 % Caustic Soda)	"	9		
" (60 % Caustic Soda)	"	8		
" (60 % Caustic Soda, cream) (f.o.b.)	"	8		
" Bicarbonate	"	6		
" Hypsulphite	"	7		
" Manganate, 30 %	"	16		
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0		
" Nitrite, 98 %	per ton	27		
" Phosphate	"	15		
" Prussiate	per lb.	0		
" Silicate (glass)	per ton	5		
" (liquid, 100° Tw.)	"	4		
" Stannate, 40 %	per cwt.	3		
" Sulphate (Salt-cake)	per ton	1		
" (Glauber's Salts)	"	1		
" Sulphide	"	8		
" Sulphite	"	6		
Strontium Hydrate, 100 %	"	8		
Sulphocyanide Ammonium, 95 %	per lb.	0		
" Barium, 95 %	"	0		
" Potassium	"	0		
Sulphur (Flowers)	per ton	3		
" Roll Brimstone	"	5		
" Brimstone: Best Quality	"	4		
Superphosphate of Lime (26 %)	"	2		
Tallow	"	32		
Tin (English Ingots)	"	97		
" Crystals	per lb.	0		
Zinc (Spelter)	per ton	17		
" Chloride (solution, 96° Tw.)	"	5		

THE HEMICAL TRADE JOURNAL

AND
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310.

SATURDAY, APRIL 29, 1893.

Vol. XII.

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ADVERTISEMENT.

TO MANUFACTURING CHEMISTS.

TAR AND AMMONIA WATER.

Directors of the Loughborough Gas Company
pared to receive Tenders for the Surplus Tar and Ammonia Water, to
at their Works for One Year, from the 30th day of June, 1893.
ted quantities will be about 350 tons of Tar, and 900 tons of Ammonia
Tar and Liquor to be delivered into the Contractor's boats at the
y Derby Road, Loughborough.
th of the Liquor to be tested by Twaddell's hydrometer (temperature
tender to state the price per ton of four degrees up to eight degrees.
for the removal of the Tar and Liquor to be sent at such times as may
Payments 10th of following month.
ormation may be obtained on application to the undersigned, to whom
cordance with this advertisement, must be sent not later than 8th day

ors do not bind themselves to accept the highest or any tender.

J. B. BALL, C.E.
Manager.

1893.

Notices.

munications for the *Chemical Trade Journal* should be
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terly (13 numbers) 3s. 6d.

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s Wants, and Specific Articles for Sale by Private Contract are
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ments of Situations Wanted are inserted at one-half the
when prepaid, viz.:—

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rtisements, Announcements in the Directory Columns, and all Adver-
prepaid, are charged at the Tariff rates which will be forwarded on

ments intended for insertion in the current week's issue
in the office by Wednesday morning at the latest.

CURRENT TOPICS.

THE INSTITUTE OF CHEMISTRY.

THE new signs of life and activity which have character-
ised the proceedings of the Institute of late have
evoked comment on several occasions, and they are yet
once more *en evidence*.

This time it is in the shape of an extraordinary general
meeting to consider two important matters. The first of these
should gain the ready support of a large majority of the
members, for it is none other than a resolution to empower
the Council to expend a sum not exceeding a thousand
pounds for the purpose of erecting a chemical laboratory at
the back of the new premises in Bloomsbury Square. The
desirability of the Institute having a laboratory of its own
has been made so emphatically apparent in the past that it
is needless to press the point here.

We may, perhaps, be allowed to express the hope that,
since the Institute is aiming at lifting its members above the
level of ordinary people, their laboratory will be in keeping
with their present aspirations, and be a model laboratory.
The present Council contains talent which should be able to
devise a laboratory of such phenomenal superiority as to
afford in itself an object lesson to every student examined
in it. The proposal provides an excellent opportunity for
the Institute to distinguish itself in establishing a typica
laboratory for the performance of a lot of accurate work in
a short time, and we trust it will not let the opportunity pas
unavailed.

The second matter for consideration is the report of th
Censors. This report deals with six actions which the
Council propose to deem discreditable to the profession of
analytical and consulting chemists.

There are only two points which are likely to provoke
much discussion, and those are the two first, which condemn
the practice of advertising in magazines and other published
papers, and the sending out of circulars or cards offering
professional services. There is nothing new about the
question, save that by the process of time it now comes up
again with an air of freshness, and should cause the meeting
to be well attended. Owing to the same being held late in
the week, it has unfortunately been found to be impractic-
able to place an account of the meeting before our readers
this week, but we can promise them a full and special report
of the proceedings in our next issue.

THE CULTIVATION OF SUGAR BEET IN GREAT BRITAIN.

Reference was made in these columns a few months since
to the success which had attended the experiments in connec-
tion with the cultivation of sugar beetroot in Scotland. For
some reason farmers in this country are much adverse to
giving this matter the attention which it deserves. Dr.
Schack-Sommer, of Liverpool, has devoted a lot of time to
the subject, and has, during the past year, superintended a

series of experiments in Scotland, England and Ireland, the results of which we have before us as we write.

Fifteen millions sterling is a rather dazzling figure, yet this is the sum which goes abroad to foreigners every year for sugar which might be grown and made in this country. Much is being done to try and alleviate the present depression in agriculture, and now, perhaps, farmers will be persuaded to look the question of beetroot cultivation fairly in the face. There is no doubt that good crops can be grown in almost any soil in this country with a reasonable amount of manuring.

Though the best average results were obtained in Scotland, where considerable quantities of artificial manures were used, in England, in the majority of cases, only farm manure was employed with good results. Loamy soils seem more favourable than others, albeit a sandy soil, by judicious manuring, yielded a very respectable crop, the previous crop on the land having been oats. The two largest crops in England were obtained, absolutely without any manuring whatever, from a loamy soil, on which mangolds had been grown the year previous. Favourable as this may sound, the general results of the experiments are more so. In Scotland, where the best average result was obtained, none of the land had been lying fallow, the three best crops being obtained from land on which there had been oats after hay.

The question is just now of paramount importance, since the hazardous element has almost entirely been eliminated by the data which these experiments place before agriculturalists. And it is reliable information too, for the experiments have not been made in one or two selected places to get extraordinary results, wherewith to make a flash in the pan, so to speak, but have been conducted on an extensive scale, in more or less degree, for four consecutive years, and yet good results are obtained.

Again, there are not wanting instances that this industry can be successfully established in a comparatively short space of time. In the United States, where the industry is not of long standing, it has rapidly and firmly established itself, the returns for the past year showing an increase in the tonnage to double that of the previous year, the actual figures being 12,091 tons of beets grown in 1892, as against 5,359 tons in 1891. This industry has long been a flourishing one in Germany, but the shipments of German-Austrian beet sugar from Hamburg have declined from 35,200 tons in 1890-1 to 9,080 in 1891-2, which doubtless may in a measure be attributed to the success which has attended the growth of beetroot cultivation in other places.

Under these conditions it seems that if farmers in this country are too indigent to bestir themselves on their own behalf in the matter, which has been prepared, cut, and dried for them, and substantial evidence put forward to assist their judgment, it is their own fault if they find themselves in straitened circumstances, for they have in this industry a far better means of protecting themselves than by resorting to such devices as the compulsory labelling of meat and the like.

THE WORLD'S COLUMBIAN EXPOSITION.

Before our next issue the great World's Fair at Chicago will have been formally opened. It is expected that this Exhibition will totally eclipse all former attempts of a similar nature, no matter how large, but there is one feature which it will have in common with almost all previous exhibitions, namely: it will not be ready at the appointed time. As usual, the exhibitors are blamed for causing the delay, and no doubt the censure is, in a way, merited, though those who

are exhibiting may not be wholly to blame for the delay. At any rate it is something to get such a large undertaking "fit" even for a formal opening, by the date first fixed upon.

Though the exhibition is not of particular interest to the chemical and allied industries in this country, owing to the small number that have gone into the matter in earnest, still, we wish our cousins across the herring-pond all success in their venture, and the chances are that the opening, being only a formal one, will make little, if any, difference to the ultimate success of the exhibition, since the public generally hold the same opinion of exhibitions as of pantomimes—they are seen at their best when they have been running for awhile, and have had time to "shape;" and so will bide a wee before invading Chicago.

TIPS FOR TRADERS.

TIN, which in the form of sheets is already sent to the Punjab in fairly considerable quantities, is likely to meet with an increasing demand. At present old petroleum tins are bought up and made into a great variety of articles, such as kettles, watering cans, lamps, &c. A firm at Multan imports tin of good quality for the production of despatch boxes and other japanned wares.

PYRITES and WOOD PULP are being shipped from Norway in increasing quantities.

APATITE and NICKEL ore shipments are, however, on the decrease, as compared with 1891.

THE DISINFECTION OF RAGS is now necessary under the new Act of the United States Legislature. All rags used for papermaking must, prior to shipment, be disinfected by one of the following methods:—*First*—boiling the unbaled rags in water for half-an-hour; *Second*—exposing them to the action of steam between 100° C. and 115° C., for a similar period; *Third*—exposing them for six hours in an atmosphere of sulphur dioxide, made by burning three pounds of sulphur to every 1,000 cubic feet of space; *Fourth*—exposing six hours in an atmosphere containing three per cent. sulphur dioxide gas liberated from liquid sulphur dioxide. By the third and fourth methods the rags must not occupy more than 50 per cent. of the total cubic space.

TARIFF CHANGES.

There are from time to time many alterations in the Customs regulations abroad, which it is as well for those trading in chemicals, paints, oils, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

COAL and SEA SALT are admitted free of duty to St. Pierre and Miquelon, under the French General Customs tariff.

OILS of SCHIST and PETROLEUM are, under the same tariff, charged a duty of 13 francs 25 cents. per 100 kilos.

SOLIDIFIED COCOA OILS cannot be imported under the Spanish Customs Tariff under No. 88 of the tariff with the surcharge of special tariff No. 4, because they are not considered real oils, being a product obtained from coconut oil by chemical and mechanical means; and also because the product is introduced into Spain to substitute cocoa butter in the manufacture of chocolate.

MESSRS. DEUTSCH & Co., of Seville, have obtained permission to erect a petroleum storage plant on the river Guadalquivir. The oil is to be conveyed from the vessels to the weighing machines by open pipes with locks, and thence to the storage tanks. The duty will be levied by officers of the Seville Custom House, who will be in attendance at the weighing machines.

INDIA-RUBBER CEMENT, consisting of india-rubber dissolved in benzene, is subject, under the United States Tariff (Section 4, Act October 1st, 1890), to a duty of 20 per cent. *ad valorem*.

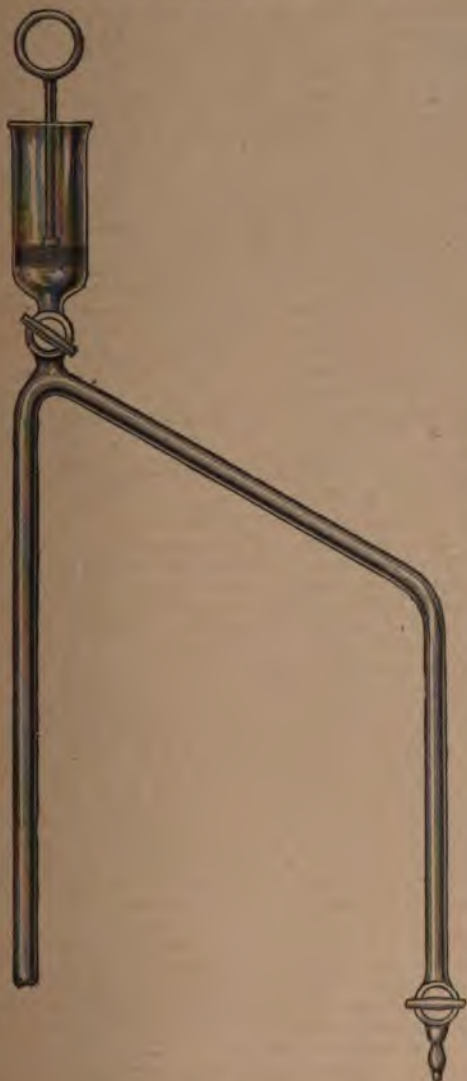
SYRIAN ASPHALTUM, which has been refined as distinguished from crude asphaltum, is subject to a duty of 20 per cent. *ad valorem* under Section 4 of the new tariff.

SOCIETY OF CHEMICAL INDUSTRY: *Liverpool Section*.—The next meeting of this section will be held on Wednesday next, May 3rd, at the University College, Brownlow-street, at seven p.m., when papers will be read by Messrs. G. Tate and A. Richardson, on "The relation of Bacteriology to Industries," and "The action of Light on Phenol," respectively. Tea will be served in the museum from 7 to 7.30 p.m.

THE "RAPID" SYPHON.

THE syphon is, and has been for many years, largely used in chemical works, the advantages of so labour saving an appliance as the syphon whenever liquids have to be handled being pretty generally recognised. A factor which has stood in the way of the universal use of the syphon is the difficulty and inconvenience frequently experienced in starting it. Much of this difficulty arises from the fact that a great many people do not really understand the principle of the syphon, and it is therefore not surprising to find that they fail to get them to work well and easily. There is consequently a good opening for a simple mechanical device for starting syphons, and though several ideas have in time past been suggested, one of the simplest we have come across so far is that introduced by Messrs. O. Berend and Co., 61, Fore-street, E.C., in their patent rapid starting syphons.

It will be seen from our illustrations, which show these syphons as specially designed and made for chemical and bleach works, etc., and laboratory use in either glass or ebonite, that they are so constructed that a syringe or pump attachment is fixed at the knee bend in such a way that the liquid is drawn over the apex by one single stroke of the piston. The pump is then shut off by a tap and the bottom tap opened on the long leg when the syphon is at once in full operation. Not a drop of fluid is spilt, and syphons of large diameter can be started as easily as small ones, the liquid readily circulating.



Another great and important improvement towards making the syphons more handy for use consists in a separate long limb, a rubber connecting piece being provided. A spiral wire is let into this piece of hose, well imbedded between layers of rubber, so that kinking or collapsing is impossible. These syphons are made in various materials. Stout tinned iron in numerous sizes is the cheapest kind and of most

universal use. Copper and tinned copper syphons are also made, and for vinegars or acids, etc., glass and ebonite ones are supplied. For chemicals in addition to the glass and ebonite forms these syphons are made in lead which should enable them to quickly gain favour in chemical works where we have known serious complications to arise out of accidents originating from the combined ignorance and careless-



ness of workmen when charging syphons with acid and other corrosive fluids. Another feature about them is that while cleanly there is also no waste with them, while since all parts are made to gauge there is no difficulty in replacing any part that is liable under special circumstances to become worn before there is any sign of wear in the other parts of the syphon. In order to show the exact method on which these syphons are worked, and also to demonstrate the simplicity of their action, we append the following instructions as how to best start a syphon.

Both taps being open, fully but gently press down the piston. The short leg is then dipped into the vessel which is to be emptied. At starting, the liquid should be about a third of the height of the short leg. Then close the draw-off (bottom tap) and draw up the pump handle, *gently and straight*, without jerk or force; close the safety tap on the pump, then opening the draw-off tap on the long leg the syphon starts.

To stop the flow, close draw-off tap, and open it again to re-start. To empty the syphon *open both* taps and *slowly* press down the pump handle.

If the syphon has not been used for some time, the leather in the pump bucket may get dry, and consequently may not be air-tight. If so, soak it well in water until supple, and then grease and replace it, after previously wiping out the cylinder and bucket. In glass syphons after soaking the asbestos bucket, carefully turn it round when pressing it into the cylinder, and avoid forcing it or the bottom of the glass cylinder may be broken.

In conclusion, to prevent disappointment, it will be as well to just call attention to three points which conduce to the easy and successful working of these syphons, namely, care should be taken that both taps are open before operating the pump. That the draw-off tap is at a lower level than the liquid to be syphoned off, and lastly, that the pump cover is properly put on. Bearing these three points in mind this syphon will, we think, be found to merit the attention of all those who have to handle oils and similar liquids, and especially their suitability for use in chemical works for filling carboys, etc., with acids.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before Mr. Justice Wright without a jury.)

THE ATTORNEY-GENERAL AND HENRY GLAVE v. A. AND F. PEARS (LIMITED).

In this case Mr. Henry Glave, a draper carrying on business in New Oxford-street, sought to recover damages from Messrs. Pears, the well-known soap manufacturers, for causing a nuisance, whereby his business had been injured. He also claimed an injunction restraining defendants in the future. The defendants denied that any loss had been occasioned to the plaintiff through their conduct, and, as to a certain period, pleaded that if any loss occurred it was due to plaintiff's own conduct.

Mr. M'Call, Q.C., and Mr. Steward-Smith were for the plaintiffs; Sir Edward Clarke, Q.C., and Mr. Sheldon for the defendants.

Mr. M'Call, Q.C., in opening the case, said that prior to February, 1891, the defendants were in the habit of showing fixed pictures in their central second-floor window at night by means of a magic lantern. The plaintiff's premises, which had a frontage of 130ft., were immediately opposite, and no complaint was made at the time. In February, 1891, however, movable slides began to be used, and these proved very attractive to a crowd of persons who assembled at night to view the display. The crowd, however, assembled on the opposite side of the street, and the result was that the pavement in front of plaintiff's premises was blocked and his business seriously interfered with. The crowd were not customers of defendant's, though he had no doubt that most of them would have benefited by an application of the defendants' specialities; neither were they customers of the plaintiff's, for they kept their backs turned towards his windows, in which tempting garments were displayed, the whole time they remained. Plaintiff accordingly wrote to Mr. Barrett, the defendants' manager, and it was arranged that some modification should take place. So matters went on until September, when plaintiff complained that people came along before the display began to secure a good position. This, however, was abated in some way, and not until August, 1892, did plaintiff again have reason to complain. The defendants were then showing some attractive pictures representing a shipwreck scene, with a rescue by the lifeboat and a thunderstorm at sea. There were also a purple monkey climbing up a yellow stick, a monkey shaving, a clown with a movable head, and others too numerous to mention. The result was that crowds of children and idle persons used to sit on the brass moulding in front of plaintiff's windows and on the kerb, and his business between the hours of 6 and 8 in the evening fell off almost entirely. On September 23 plaintiff, by means of an arc lamp fitted with a reflector, threw a light on to defendants' screen and prevented it being seen; but the defendants then gave displays from the east and west windows as well, where plaintiff's reflector could not reach them. Accordingly communications took place between the parties, and defendants agreed only to use their central window if plaintiff did not use his electric search light, and also not to use movable pictures until 8 o'clock, at which time plaintiff's premises closed. Plaintiff, however, had sustained a real and serious loss, and it was necessary to take these proceedings.

Mr. Justice Wright.—Why is the Attorney-General made a party to this action?

Mr. M'Call, Q.C.—My Lord, plaintiff's complaint is of a public nuisance.

Mr. Justice Wright.—If plaintiff's private rights are affected, I do not see the necessity.

Mr. Henry Glave, the plaintiff, was then called, and said that, owing to defendants' display, large crowds assembled on the pavement in front of his premises. They stood up against his cases and windows, and prevented customers from either seeing his goods or getting into his shop without having to fight their way in. Defendants kept adding to their stock of slides, and the better the show became the greater the

crowds. In September last he tried to use a reflector with his arc lamp turned against the defendants' screen. They, however, started displays at other windows, and so he gave it up after a few nights. Since October only the middle window was used and the show was not so attractive, so that the crowds were not so large. Between the hours of 6 and 8 p.m. he used to do a good trade until the crowds began to assemble nightly. Since October 13, when the writ was issued, things had much improved.

Cross-examined: The show had been gradually improved, and the number of slides increased up to September last. One night, on returning from a hall at 10 p.m., he found a crowd still outside. He did not remember what hall it was, but it was not later than 10 p.m. He kept his windows lighted up all night, that people might see his goods as they passed by. In September, 1891, defendants invited suggestions from him as to what should be done, but he did not think it his business to suggest. He wanted the whole thing done away with—not a mere modification. The reflector was used by his authority, about September 20. Until then defendants only used their central window. His light obliterated defendants' pictures, and they then used the other windows, where his reflectors could not get at them. He would probably never have complained if things had remained as they now were. His business had fallen off, no doubt owing to the crowds stopping customers for two hours every night.

Re-examined: In August, 1891, he complained to the police.

Mr. Glave, jun., Edwin Sansom, the plaintiff's head porter, who managed the arc lamp, and a number of plaintiff's "heads of departments," gave evidence as to the loss of business and the crowds that assembled. Mr. M'Call cited a number of cases.

At this point the case was adjourned, and on being resumed next day Sir E. Clarke, Q.C., addressing his lordship, said an arrangement had been come to between the parties, whereby the action was discontinued without costs. The defendants did not wish to be anything but friendly and neighbourly, and, without giving any undertaking, had no intention or wish to use any picture but a fixed one before 8 p.m.—the hour at which plaintiff's premises close. The plaintiff, on the other hand, will not use any reflector, or anything in the nature of a reflector, to interfere with the defendants' exhibition.

Mr. Stewart Smith: It is hoped that this course will cause hostilities to cease, and remove the cause of complaint.

Mr. Justice Wright: I think this arrangement does both parties credit.

MANUFACTURE OF POTASH, SODA AND MAGNESIA FROM KAINIT.

IN *Le Genie Civil*, M. D. Lidersky describes the new process adopted by the Buckau Chemical Company, of Magdeburg, for producing pure potash, soda and Magnesia from the kainit deposits of Stassfurt, Germany. Most of this kainit is sold as manure, and only a very little has been employed in the manufacture of potash, partly because so many useless bye-products were found, and partly because it was difficult to obtain a pure potash with the Leblanc process, which was the only one employed. The new process uses up all the bye-products, and besides potash it produces soda, calcined magnesia crystallised sulphate of lime, hydrochloric acid and sulphuric acid. The average composition of the kainit used is MgSO_4 16-18%; K_2SO_4 22-24%; NaCl 30-34%. These salts are first converted uniformly into sulphate, by treatment with sulphuric acid. The hydrochloric acid produced is condensed. Concentrated milk of lime is then added to the boiling solution of sulphates to decompose the magnesium sulphate. The lime dissolves, but when left at rest for some days after slow cooling, the sulphate of lime separates out as a heavy crystalline powder covered with a lighter deposit of magnesia. The solution is then removed and the magnesia and sulphate of lime washed, separated, and collected in a filter press. The solution is then treated for the separation of the potassium and sodium salts. Barium sulphide is added to the resulting production of insoluble barium sulphate and solutions of the alkaline sulphides. The solution is boiled down to a strength of 20° B. and subjected to the action of pure carbonic acid gas obtained from the decomposition of alkaline bicarbonates. The sulphides are decomposed; sulphuretted hydrogen is evolved, and bicarbonate of soda and potash formed. The sulphuretted hydrogen is burned and converted into sulphuric acid. The bicarbonate of soda is almost insoluble in the cold solution, and is separated by filtration. The potassium bicarbonate is obtained by boiling down the filtered liquid. The bicarbonates are calcined into neutral carbonates, and the carbonic acid gas driven off is employed in the decomposition of the alkaline sulphides.

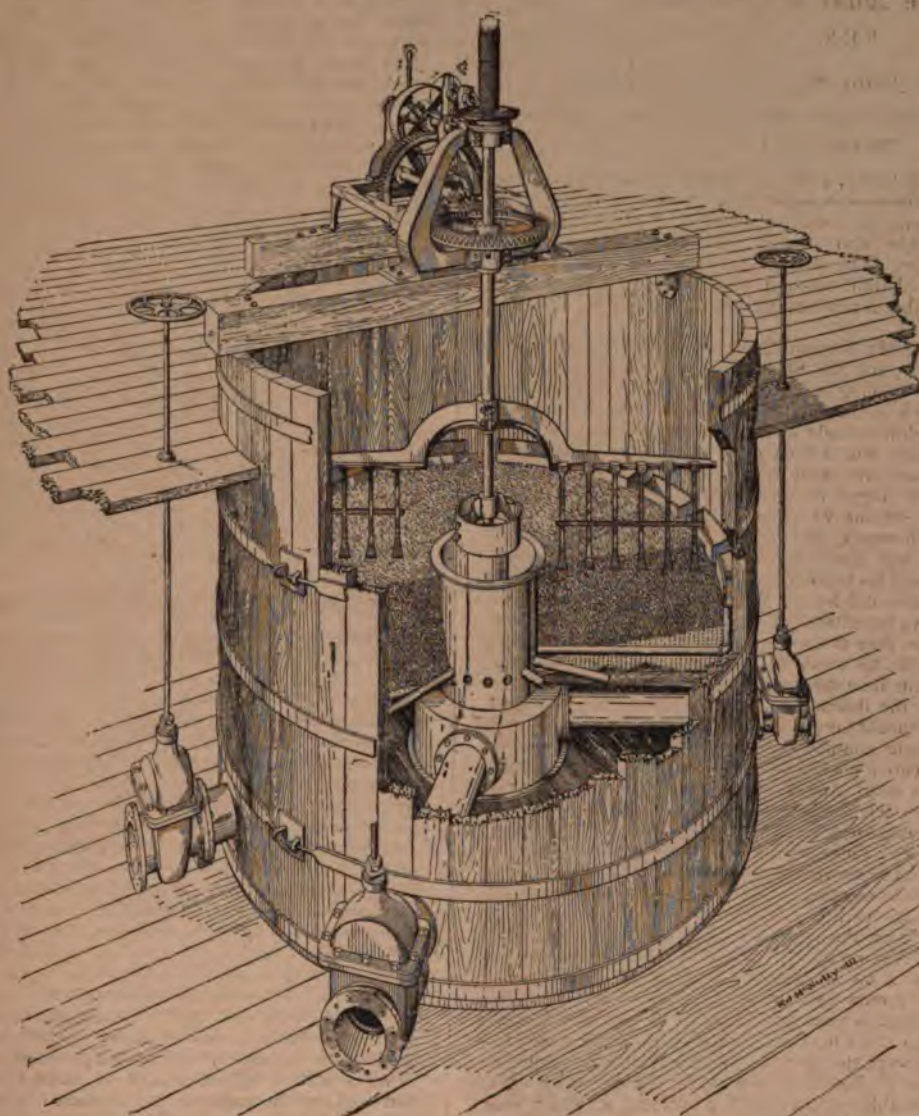
THE WARREN FILTER.

THE necessity of means for the mechanical filtration of water is a growing one, and of great importance to bleachers, dyers and paper makers in the Lancashire District, now that the Mersey and Irwell Joint Committee are taking such active steps to prevent the introduction of solids into the rivers.

The solids in suspension will certainly have to be removed, and they occur in considerable quantities in the effluent waters of those industries we have mentioned above. Among the many systems of water filtration, whether for trade purposes or for town supplies, the Warren Filter is one of the best for simplicity, and rapidity of cleansing we have met with.

The majority of filtering systems now on the market are of the so-called "closed" variety; that is, are constructed in such a manner as

The method or apparatus for cleansing the filter bed is, generally speaking, the principal patented feature by which the various filters are distinguished from each other. The arrangements for cleansing in this particular filter are very simple and effective, as will be seen from the description which is to follow, but prior to describing the method of cleansing, it will be more in accordance with the natural order of things to give some idea of how the filter becomes dirty and so needs cleaning, or in other words the principle on which the filtration of the water is effected. The filter itself consists of a round wooden tank, of from eight to twelve feet in diameter. Taking, for example, an eight-foot filter, capable of filtering 300,000 gallons per day, we have a bed of fifty square feet in area, composed of gravel, resting on a perforated plate to a depth of some twenty inches, which plate supports the filtering medium. The water to be filtered is allowed to enter through the valve connected with the column in the centre of the filter bed, through



to be part of a pressure system, and, where such a system does not exist, the requisite pressure must be supplied by suitable pumping arrangements, and the steam plant necessary thereto, with all that this implies, both in the first cost of the plant and the expense of the operation.

The Warren Filter, from its peculiar construction, is intended for use as a gravity filter, the water being filtered by a system of percolation such as is common in natural filtration through the soil. This requires less depth of bed and also simplifies the construction and lessens the expense of operation, as in this case gravity alone furnishes the requisite pressure for conducting the operation, and, as will be seen in the description of the filter, as given further on, greatly simplifies the problem of cleansing the filter of its accumulated matter.

which it rises and flows on to the filter, filling the upper portion of the tank. The water percolates through the filtering medium and escapes through the perforated plate into the lower portion of the tank, from whence it is drawn off by the valve on the left of the filter. When the filter has been at work for, say, twenty-four hours on a pretty good water, it becomes necessary to cleanse the filter bed. This is done by closing the valve which communicates with the supply of unfiltered water, and opening the valve on the right. This is connected with the sewer and allows the water in the upper part of the tank to flow away. The revolver is then put in operation by means of the gearing at the head of the filter, and also gradually lowered vertically into the bed by means of the regulating screw which is shown. The valve on the left is in the meantime opened, and clean-filtered water enters, rises through

the filtering medium, carrying away all impurities by the trough at the edge of the filter bed. As will be seen, the cleansing operation, therefore, consists of a combined rinsing and scouring process. The reversed flow of filtered water rinses the bed while simultaneously the teeth of the rotary agitator scour it. Other systems are generally content with the cleansing effected by the rinsing process alone, or by the indirect scouring action which violent rinsing may effect.

The twofold process which renders the system of cleansing more effectual than most other systems also makes it more rapid—the interval before resumption of filtration being not more than from ten to fifteen minutes.

The length of time during which the filter can operate without cleansing depends upon the rate at which matter is intercepted and retained in the bed. If the water coming to the filters is only slightly charged with impurities, to cleanse the filter bed once in twenty-four hours is often enough. On the other hand, in cases of muddy water, the beds may have to be cleaned every six or eight hours or oftener. As soon as a bed is saturated with intercepted matter it should at once be cleansed. Ordinarily twelve hours has been found to be a proper interval.

The mechanical arrangements for cleansing the Warren Filter admit of considerable latitude in the selection of filtering material. This can be of one substance or another, and with a grain small or large as may best suit the demands of any particular water supply. Generally it has been found that a size of grain which can be described either as a fine gravel or coarse sand is entirely suitable for the purpose.

One great advantage about these filters is that the water can be treated, if necessary, before filtration, with chemical precipitating agents, and likewise, if desirable, any patent filtering material can be used by itself or mixed with the sand or gravel employed in the filter originally.

In all cases where it is possible, and especially where a coagulant is used, it is important that there should be a settling basin through which the water shall pass before entering the filters.

The desirable size of settling basin is too large to be represented in proper proportion in the cut, but it may be briefly described as being a rectangular basin in which the water is brought to a quiescent state, and allowed to deposit its sediment. It should be as large as circumstances will conveniently permit.

The purpose would be defeated if the basin should be divided into a large amount of still water, and a small but rapid current passing through this still water straight from inlet to outlet. To avoid this, a light wooden partition is interposed which, by deflecting the current, effects such an even distribution of the water that each part has an equal period of rest.

A very slight amount of power is sufficient for the operation of the filters, power being required only during the time of cleansing. When the filters are not washed simultaneously, but successively, no more power is required for a large than a small plant. A four or five horse-power engine for a plant of eight-foot filters affords a considerable margin of power.

It is interesting to note that the filter takes its name from the inventor, who was a partner in the well-known firm of S. D. Warren and Co., paper makers in the United States, who use some 12,000,000 gallons of water per 24 hours, and who therefore know the need paper makers have of a good supply of clear water. The sole licensee for Europe is Mr. F. Nell, 16, Mark Lane, E.C., from whom further particulars of this filter, along with estimates, etc., can be obtained.

Official Memoranda.

(From the Board of Trade Journal.)

THE WORLD'S PETROLEUM SUPPLY.

Petroleum is produced in various countries, either in its raw state springing from natural sources—as, for example, in the United States, Russia, Canada, Dutch East Indies, Austria, Roumania, Peru, Argentine Republic, and Ecuador, or produced by the distillation of bituminous schist, as in Italy and France. Up to the present the United States has been the most important centre of the petroleum production. The *Moniteur des Interets Matériels* says that statistics establishing the yield during the last months of 1892 seem to indicate a gradual exhaustion of the sources, as the average monthly supply in 1892 was only 87,711 gallons, compared with 94,980 gallons in 1891. On the other hand the production of raw petroleum in 1891 and 1890 was respectively 34 and 45 million barrels, or a falling off of 11 million barrels in 1891. In spite of this the exports of petroleum, raw and refined, have followed, thanks to the employment of tank steamers, an ascending scale, and amounted to 740,905,237 gallons in 1892, as compared with 667 millions in 1891.

In spite of the diminished production, the prices, instead of rising, have experienced a fall, owing to the keen competition of Russian with

American petroleum, hence the abandonment of certain springs in the United States.

At Baku, in Russia, the production is very great, and even exceeds the demand. No greater proof of this fact can be evidenced than the low prices lately quoted, viz., one-half copeck per poud (36 lbs. avoirdupois) for raw petroleum, and seven copecks free on railway trucks for refined petroleum. During the first nine months of 1892 the production of raw petroleum in the Apsheron Peninsula amounted to 213,560,157 pouds, as compared with 213,056,000 pouds for the corresponding period of 1891.

The present depressed condition of the petroleum market in Russia will be improved, it is expected, by the formation of the syndicate that has been constituted by the seven principal producers of petroleum at Baku under the presidency of M. M. Nobel frères.

With respect to petroleum production at Baku, Mr. P. Stevens, Her Majesty's Consul at Batoum, in a report to the Foreign Office, dated the first March, states that an oil well has recently commenced to flow at Baku, which at its present rate of production, considerably exceeds the daily output of all the largest wells that have hitherto been in activity in the Apsheron Peninsula.

It is estimated that the well in question is delivering as near as possible one million pouds, or 17,742 tons of crude oil a day, but owing to the almost insurmountable difficulties experienced in getting a flow of this magnitude under control, most of the oil is running to waste into an adjoining lake known by the name of Romani.

The well is situated from a quarter to half a mile further eastward on the Peninsula than any of the other wells, and, it would appear, opens up a fresh territory, comprising several hundred acres of land from which no oil has yet been extracted.

From the point of view of the importance of the production, the petroleum supplies of Canada take the third place. From the 1st January to the 30th November, 1891, 192,700 barrels of raw petroleum and 248,025 barrels of refined were exported. During the same period of 1892 these shipments amounted to 182,371 and 279,823 barrels respectively, a total production in the first 11 months of 1891 equivalent to 805,687 barrels of raw petroleum, and in 1892 to 917,561 barrels. Petroleum has been found in Quebec, Nova Scotia, and New Brunswick, and particularly in the North-West territories, where it seems certain that there is an immense unexplored oil region. It is, however, in the county of Lambton, Ontario, whence most of the oil has been, and still is, obtained; the township of Enniskillen is one of the largest oil-producing districts, and the oil is obtained there at a depth of from 370 to 500 feet. The first flowing well was struck in February, 1862, and before October of the same year there were no less than 35 wells. As there was no accommodation for the storage of this enormous flow, there was a frightful amount of waste, and it is calculated by one authority that between the dates mentioned no less than 5,000,000 barrels of oil floated off upon the water of a neighbouring creek.

The petroleum supplies of the island of Sumatra have only recently been exploited. The product of one district amounted to 20,000 ten-gallon boxes in a year. According to the most recent analyses (*vide C.T.J.*, No. 326, p. 210) the Langkat petroleum is of excellent quality, and moreover they are derived from lands the extent of which is forty times greater than those in Russia.

According to official statistics, published by the Austrian Minister of Agriculture, there were in Galicia in the year 1891, 199 establishments engaged in the production of petroleum, and 79 ozokerite mines, supplying together a total quantity of 93,875 tons, of an estimated value of £491,000.

In Italy and France petroleum is obtained by the distillation of bituminous schist. In 1891 the Italian production was 1,155 tons of petroleum, while in France the amount of the product for 1889 was 194,000, as compared with 174,000 in 1888.

The yield in Roumania barely attains a value of £2,400, although this amount might easily be increased, seeing that there are vast numbers of beds from which it can be obtained, and that the oil itself is of excellent quality. The explanation of the small supply lies in the fact that the government insists, in the case of crown lands, upon the payment of a royalty immediately upon the signing of the contract, and even before any petroleum has been found.

The petroleum beds in Peru are of vast extent and are beginning to attain considerable importance. The London and Pacific Petroleum Company have works extending over a distance of two miles along the coast, and own 26 pits which are in working, having a depth of from 70 to 500 feet, and producing 900 barrels a day.

In the Argentine Republic, 12 pits have been sunk in the department of Lujan, province of Mendoza, of which three have yielded excellent results. The company working these mines since 1890 have produced about 1,500 tons of petroleum.

At Cachenta, in the province of Mendoza, in the Argentine, a considerable petroleum industry has sprung up during the last two years. In this district there is a promise of great mineral wealth, but as yet it has been worked only in a desultory manner. There seems to be a future before the petroleum industry. Up to the present time three

successful borings have been made, and the total output since the first boring in April, 1890, has been 1,500 tons. The oil is conducted through pipes to the storage tanks at San Vincente. It finds a ready sale at the Rio Cuarto and Mendoza Gasworks and at the Argentine Great Western railroad. This railroad has 12 locomotives which use the oil as fuel.

In the republic of Ecuador numerous petroleum beds are known to exist, and these are of considerable extent. In certain places the oil springs from the ground and forms pools and streams, which eventually find their way into the sea. A syndicate has recently been formed, with the object of obtaining the concession of these sources of petroleum, the product of which is said to be of a very good quality.

In British Burma it appears that there are now 602 petroleum wells, an increase of 92 since 1888, but there are distinct signs of exhaustion. The fact that the aggregate production of the richer wells has fallen off, while that of the poorer ones has increased, although many new wells have been opened, is regarded as the surest indication of the approaching decline in the industry. The drilled wells worked by the Burma Oil Company and the Burma Oil Syndicate have given very satisfactory results. In 1890 the total out-turn amounted to over 3,670,000 viss; but the rate of progress during 1888, 1889, and 1890, has not been maintained during the past two years. The history of the industry shows that the production of the oil field steadily increased from the beginning of the century until about 1873, when it began to decline, rising again in 1885 and coming practically to a standstill in 1891.

Parliamentary Jottings.

THE EMPLOYERS' LIABILITY BILL.

ON this Bill coming on for the second reading in the House of Commons on Tuesday last, there was a somewhat lengthy debate. Mr. Matthews, in speaking of the measure, the text of which has appeared in the *Journal* (No. 299, p. 96), said the employer was to be prohibited from securing himself against liability under this Bill. No insurance against liability would be permitted. The employer was to be liable for the servant of his sub-contractor whom he had not hired, whom he did not pay, and whom he could not dismiss. The Home Secretary also demanded that domestic servants should be included in the Bill. It appeared to him that the Bill embodied no final principle. He would not offer any objection to the employer of labour being required to equip his premises in the fullest and safest way, and to exercise the greatest care in the selection of every agent. He would not object if any of his agents were not competent or properly skilled, that that should be treated as negligence on the part of the employer. But the right hon. gentleman had not taken negligence as the ground of liability. On the contrary, he said that, although the employer might have exercised the greatest caution and the greatest possible prudence, though he might not have neglected anything which an honest and careful man ought to do, though he might have chosen his agents with the greatest care, yet if any one of his servants deliberately broke the rules laid down for his guidance the employer (who was certainly not morally responsible or morally to blame) would be subject to penalties which in many cases might practically ruin him. The Home Secretary, with that wisdom which distinguished him, had dismissed the whole generation of Judges who had established the doctrine of common employment, and who had pointed out again and again that there was a broad distinction between the case of a fellow-servant and a stranger. In the first place the fellow-servant knew the danger of the employment; secondly, he had, generally speaking, means of avoiding the danger by the vigilance he could exercise; and, thirdly, he had made his own bargain, and had not stipulated that the negligence of another fellow-servant should involve the liability of the employer. There was a much truer and more just proposition on which the principle of liability in the Bill might work—that the risks of any employment which was carried on for the benefit of employer and employed alike should be borne in proportion by all engaged in it. In such cases all should be made to contribute to the cost which the risks might involve. At the same time any man who was clearly guilty of negligence should, of course, be made entirely liable for the consequences.

THE LEITH WATER PURIFICATION BILL.

On Monday, the Water of Leith Purification and Sewerage Bill was read in the House of Commons a third time.

THE CHEMIST'S SHOP SURVIVED.—A fire broke out recently at Cassville, Missouri, and spread rapidly, destroying a great number of buildings. Eventually but one chemist's shop and a grocery store were left in the place. That chemist should be doing a mammoth trade in limewater and olive oil.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

W.E.F.—We are sorry we cannot supply the others you are in want of, but they are now very scarce.

G.H.R.—Thanks for notification.

J.T.S.—Thanks for letter. We are pleased to hear you intend going on with the matter ultimately.

F.N.—This week.

J.V. (Paris)—We are writing you in reference to the question.

P.D.C.—It is quite correct. Much care and discretion is required to obviate the commission of accidental errors, and the pitfalls are many, but it is very seldom that one creeps in, and you will see that this has not been the case this time.

W.F.—Thanks for sending on alteration. It had been omitted, as you surmised.

Trade Notes.

SOCIETY OF CHEMICAL INDUSTRY: *London Section*.—The next meeting of this society will be held in the rooms of the Chemical Society, Burlington House, on Monday, May 1st, at 8 p.m., when a paper will be read by Dr. P. Dvorkovitch, on "The gasification of coal and of liquid hydrocarbons," and also on the "Estimation of tannic and gallic acids," by Mr. W. P. Dreaper.

THE GORTON-BROOK CHEMICAL WORKS.—Messrs. J. Beck and W. Shawcross, trustees of the will of the late James Farmer, give notice that they have sold the business of chemical manufacturers carried on by them as trustees at Gorton Brook Chemical Works, Manchester, under the style of James Farmer, and that neither they nor the estate of the late James Farmer will be responsible for any debts contracted in respect of such business on or after the 17th inst.

WHERE WAS THE PROFESSOR?—An accident of a rather serious character occurred in the chemical laboratory of the Yorkshire College on Monday last. One of the students in the dyeing department, named Julius Geldard, was experimenting for his own amusement with a mixture of dangerous chemicals, and whilst grinding them in a mortar with a pestle they exploded, with the result that his face was severely burnt. A fellow-student, T. L. Williams, of Llandysul, South Wales, was standing near Geldard at the moment, and he, too, was injured, his forehead being burnt. Geldard fortunately wore spectacles, or the consequences would in all probability have been much more serious. Both the sufferers were removed to the Infirmary. It need scarcely be said that the professor in charge of the laboratory had no knowledge of what Geldard was doing, otherwise the accident would not have occurred.

THE COPYRIGHT OF CATALOGUES.—Some time ago, it will be remembered, mention was made in these columns of an action against Messrs. Barry, Henry, and Co., which was raised in the Court of Session by Messrs. Harper, Limited, Aberdeen, craving for interdict, it being alleged that the defenders had infringed the pursuers' copyright catalogue and circulars. Messrs. Harper subsequently threatened to raise an action of damages in respect of the infringement, and the defenders have now settled the case by agreeing to pay £1,000. to the pursuers. This, it may be added, practically settles for the first time in Scotland the law regarding the copyright of trade circulars.

WHAT IS VINEGAR?—At Bristol recently a shopkeeper was fined ten shillings for selling a mixture of dilute acetic acid and colouring matter as malt vinegar. The sample supplied to the inspector was drawn from a cask labelled "Pure Malt Vinegar." Some amusement was created by the merchant who supplied the vinegar, informing the court that he would not injure the health of the public by putting malt into his vinegar, for what was malt but spoiled barley? This little bit of *finesse*, however, did not succeed in averting the imposition of the fine.

SERIOUS EXPLOSION AT OLDBURY.—About midnight, on Monday last, a terrific explosion occurred in the Oldbury works of the Oldbury Aluminium Company. A furnace used for the manufacture of sodium per-oxide exploded from some unexplained cause. The report was heard for several miles round, and the buildings in the town were shaken to their foundations. Fortunately only a few men were employed in the night turn, or the consequences would have been most disastrous. The debris was scattered in all directions, and a large portion of the premises was completely wrecked. Only two men were injured, fortunately. At present, no estimate can be formed of the damage done.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is very dull indeed with the exception of carbolic acid, which maintains its firmness. For 90's benzol prices are variously quoted at 1s. 6d. London, 1s. 4½d. to 1s. 3d. provinces, while 50/90's are certainly not value for more than 1s. 4d. Anthracene remains as formerly quoted.

The sulphate of ammonia market has experienced a decided change, probably owing to the serious drop in nitrate of about £1. per ton. The fall in nitrate is in a measure due to the drought, but also to forced sales of steamer arrivals. Spot sulphate cannot easily be sold and late rates are in many cases not obtainable; consequently there are sellers at £12. 7s. 6d. immediate, and £12. 5s. for early May delivery, Liverpool, while London, Hull and Leith range from £12. 2s. 6d. to £12. 5s. The quotations emanating from dealers are even below this. Following on this slight recession, forward business has been undertaken by dealers and speculators from May to October delivery, orders having been absorbed at £11. 12s. 6d., while October to March next has been absorbed on the same basis. Nitrate is flat.

THE LIVERPOOL MINERAL MARKET.

The market this week continues steady. Manganese steady and p. ice unaltered. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) quiet; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Selling largely at full prices; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals are small and prices firm, both for "Angel White" brand and "Silvery." Barytes: Carbonate continues very scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland flat. Santander and manganiferous quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fallers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal is in good demand, and prices are firm. Chrome ore, best qualities are in good demand, and prices firm. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

MISCELLANEOUS CHEMICAL MARKET.

Prices current in the alkali trade have undergone no change in the past week. Open orders for alkali are somewhat scarce, but there is a fair volume of business passing under contracts. Bleaching powder is fairly active, and price remains at £8. nett makers' works, and £8 10s. f.o.b. Liverpool and Tyne. For soda ash quotations range from 1½d. to 1¼d. per degree for the various grades of ammonia and Leblanc makes. Soda crystals quiet, and without change in price. Caustic soda: prices unaltered, viz., f.o.b. Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., 10 ton lots and upwards. Chlorate of potash still obtainable at 8¾d., though the nominal quotation is 9d. for early delivery. Recovered sulphur quiet at £4. 2s. 6d., f.o.r. Sulphate of copper has been more enquired for, but there is no change in quotation meantime. Nitrate of soda is reported slightly easier. Acetates of lime and soda are without nominal change in value, but have a slightly firmer tendency, more particularly for forward deliveries. In potash, caustic, and carbonate the spot demand is small, and prices are without change. In carbolic acid, in all qualities there is a fair amount of business being done, and prices continue steady. White powered arsenic still scarce, and price firm at £13 10s. to £13 15s. nett for spot. Prussiate of potash, 9¾d. Aniline salt and oil are only in moderate request, but prices are without any recent variation. Generally, demand in all branches of the chemical trade is still far from satisfactory.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron easier. Scotch warran at 40s. 8d. cash. Middlesbrough 33s 10½d. cash, and Hem 5d. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s £44. 7s. 6d. to £44. 15s. cash, and £44. 15s. to £45. 2s. 6 months. Tin quiet: Straits closed at £93. to £93 10s. 6 £88. (nominal) three months. Australian, £93 12s. 6 English ingots, £96. Lead, steady: Spanish, £9. 13s. 9d. to £9. 17s. 6d. to £10. Silesian spelter: Ordinary, £18 2s. 6d. Antimony, £41. 10s. Quicksilver: First bat 15s., second hands, £6. 12s. Copper shares inactive: Cap 1½. Copiapo, 2½ to 2½. Libiola, 3 to 3½. Mawe at 2½ to 2½. Rio Tinto, 15½ to 15½; Tharsis, 5¼ to 5¼; 1 to 1¼; Panulcillo, ½ to ½.

LIVERPOOL OIL AND COLOUR MARKET.

OILS.—Palm oil has experienced a somewhat brisker demand sales have been made for Lagos to arrive £24. per ton, and generally is steadier. Olive is steady but the market of drought in Italy is seriously affecting the olive crop; prices £33. 10s. to £43 per tun. Linseed has moved slightly in of buyers to 20s. 3d. to 21s. 6d. per cwt. in export, though the demand is very quiet these prices have been at Rape is dull, but prices remain as last quoted, namely, refined 28s., and English refined 27s per cwt. Cottonseed has much during the week, Liverpool refined after standing at 24s. 3d., gradually declined to 21s. 6d. to 23s. 6d. per to-day, however, rather firmer at 21s. 9d. to 23s. 9d. Caster Considerable quantities of good seconds Calcutta having been Sellers are firm at 2½d. to 2½d. per lb.; first pressure been selling, ex quay, at 2½d. per lb., and remains thereat. there has been more doing in North American at 26s. to 28s. according to quality. Resin is steady with a moderate trading in common at 3s. 10½d. per cwt. spot, medium 4s. 9d. 8s. to 10s. 9d. per cwt. Spirits of turpentine have continued and are to-day quoted 24s. per cwt., though the market is tending to advance. Petroleum quiet; American 4½d. Russian refined, 4½d. to 4½d. per gallon.

COLOURS steady. Prices unaltered. Ochres: Oxfordshire, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 40s. Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £24.

REPORT ON MANURE MATERIAL.

There has been a good business passing during the week, immediate delivery, but prices have been decidedly irregular.

There are sellers of 75-80% Florida phosphate rock, autumn shipment at 8¼d. per unit in cargoes c.i.f. to United and that is probably the nearest value. Peace River rock is 7d. per unit, and hot-air-dried South Carolina River 1 per unit.

There is nothing to report in cargoes of River Plate summer-autumn shipment talk of £4. 5s., United Kingdom Continent, but buyers do not see their way to giving it present. There is scarcity of bones and bone meal on spot considerable advance has been paid for both. £4. 7s. 6d. for crushed East Indian Bones, and £4. 15s. freely paid for For shipment £4. 2s. 6d., nearest value of crushed Kurnah and £4. 5s. required for Bombay bone meal. Common grain are worth £3. 15s. to £4. according to quality and condition at Liverpool.

Owing to arrivals of cargoes at port of call, the nitrate market has given way and very low prices have been accepted. However, there has been a recovery from lowest points touched store, immediate delivery; the nearest value is 10s. 3d. to For delivery from earliest arrivals, due next week, less would probably 9s. 9d. per cwt., in good lines. It is scarcely possible a price upon cargoes only due at port of call.

The export demand for dried blood has fallen off, a closing value of home-prepared of high test is 1rs. 6d. per rails at works. It is understood that a parcel of River Plate way has been sold at about 10s. 6d. per unit, ex quay at Liverpool.

TYNE CHEMICAL REPORT.

TUESDAY.

are in slightly better demand. Bleach very firm at Soda Crystals reduced to £2. 10s. per ton locally. Sulphur, per ton. Considerable shipments have recently taken place duct. Caustic soda quiet.

ing powder, softs, £8. 5s. per ton nett; hards, £8. 10s. caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per covered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 8s. per ton, 52%, £4. 15s. per ton, 56%, £5. 2s. per li, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, r ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 lb., £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per Tw., £4. 5s. per ton; soda crystals, in casks, £2. 10s. gross weight, in 2 cwt. bags, £2. 10s. per ton nett chlorate of potash, 8¼d. per lb. less 6%; pearl hardening, in nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; of £7. 10s. per ton; chloride of barium, £7. 10s. per ton; of alumina, £28. 15s. per ton net; aluminate of soda, per ton net; in 5 ton lots, £28. 10s.; hydrate of barium, ton net.

Durham salt quiet at 9s. 1d. per ton, f.o.b. Tees.

Trade for Northumbrian coals steadier, and price for best n at 8s. 6d. per ton, f.o.b.; second qualities, 8s. per ton, all steam 3s. 3d. and 3s. 6d. per ton, f.o.b.; bunker coals per ton; gas coals rather weaker at 6s. and 6s. 6d. per ton; er at 13s. 6d. and 14s. per ton for best Durham; household demand decreasing daily.

L PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

—The strike still prevails and affects all business. The oilve it forth that they joined the movement in support of the out the actual facts are, the crushers are unable to get their the docks and the millers, no doubt, are only too pleased to selves of strike pay. There is very little doing of any e, with but slight alteration in the prices ruling in our last Linseed oil is a little easier. The present prices are:—oil closing with sellers at 19s. 3d. per cwt., naked, the same and August; 18s. 3d. September-December deliveries. d oil (refined) 19s. 6d., naked, spot accepted; May-August, sellers; crude on spot offers at 18s. 6d., with no buyers over May-August, 18s. 9d., barrels 25s. per tun extra. Rape oil is quoted, in casks, 26s. 6d. Olive oil, according to quality, 40s. per tun. Turpentine, American, 24s. per cwt., barrels troleum jelly 26s. 6d. per cwt. for orange; 50s. to 56s. per white, in bulk quantities.

S.—There are very few cakes left, and trade is being diverted ports and country mills. Some large buyers are importing large from Continent to meet their demands, being unable to full makes. In one instance 1,000 tons have been bought. ations are:—Linseed, 95% pure, £9. 5s.; ordinary, £7. 5s. s.; Russians, £8. 10s. to £8. 15s.; Polish, £8. 15s. Cotton st makes, £5. 5s. Black Sea rape cakes, £3. 10s.

FS.—The market is still unaffected by the strike, except as he difficulty of meeting demand for oils, etc. Business is un- good, and prices are maintained without alteration:—Dry Venetian red, £6. to £10. per ton; oxide of iron, £9. to French ochre, 60s.; fine linseed-oil putty, £6.; ready-mixed according to make, 28s. to 30s. per cwt.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

ate of ammonia is still but little impaired in spot value, s. being obtainable; but the spring season being now well l, an early fall is being calculated on, though not perhaps a ge one. Forward price is firm at recent quotation, and some re asking £11. 15s., although buyers can do business at less.

re mineral oil section burning oil has suffered a further slight n, the demand being now almost entirely off for the season, however, paying attention to stocking rather than looking out sales, and therefore hardly anything is passing. Degree 865° ating oils is also easier at £3. 15s., with unwashed (for gas-

making purposes) about half-a-crown less. Naptha is nominally un- changed, but it is practically a drug, nobody wanting it.

Bichromate of potash and bichromate of soda are both idle at the combination prices; and in general chemicals there is little doing still, except in bleaching powder, which maintains late firmness. The opening of the Russian and other Baltic ports, as expected, has slightly increased shipping orders.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. nett Liverpool; bleaching powder, £8. 5s. nett Tyne; saltcake, 25s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 9d., less 5% Liverpool; nitrate of soda, 10s. 6d.; sulphate of ammonia, spot £12. 10s. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 865°, £3. 15s.; 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 30,428 bags.

THE COPPER MARKET.

Messrs Harrington and Co., in their fortnightly report, dated Liver- pool, April 18th, 1893, state:—Charters for the past fortnight are cabled as 500 tons, making the total quantity since 31st December 5,150 tons, against 6,200 tons same time last year. Chili Exchange, 15½d.

Since our last report about 4,400 tons G.m.b.'s and G.o.b.'s have been sold from £45. 3s. 9d. cash and £45. 12s. 6d. three months, down to £44. 11s. 3d. and £44. 18s. 9d. respectively, closing with buyers at £44. 13s. 9d. cash and £45. 2s. 6d. three months.

The directors of the Rio Tinto Company, Limited, have resolved, after writing off the amount of drawn bonds and sundry depreciations, in all £119,393., to debit of revenue account, to recommend a final dividend of seven shillings per share, making, with the interim dividend paid in November last, fourteen shillings per share, or seven per cent. for the year, free of income tax, carrying forward £83,881. The directors of Mason and Barry have declared a dividend for the last six months of 1892 of two shillings per share.

The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 2,098 tons for the fortnight. The stocks include about 1,500 tons of copper sold, but not yet delivered to smelters. The visible supply shows a decrease of 2,387 tons for the fortnight. The total deliveries for the fortnight are 4,837 tons. The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 304 tons, against 354 tons on the 1st inst. The delivery in Liverpool and Swansea was 50 tons, making a decrease of this quantity for the fort- night. Refined and manufactured sorts are steady, quotations being:—Tough cake, £47. 15s. to £48. 5s.; best select, £49. to £49. 10s.; Indian sheets, £52. to £52. 10s.; strong sheets, £56. to £57.; and yellow metal sheets, 4¾d. to 4¾d. per lb.

The sales of furnace material comprise—1,150 tons Argentiferous Montana Matte, on private terms; 110 tons Portuguese ore, to arrive, at 8s. 9d.; 200 tons Mason's precipitate, on private terms; 1/1200 tons Mason's ore, at 8s. 6d. for 6 per cent.; and 49 tons Spanish ore, to arrive, at 8s. 3d. per unit.

New Companies.

Kill-Germ Co., Ltd.—CAPITAL £5,000., in shares of £5. each. This company has been established to carry on the business of manu- facturers of disinfectants, antiseptics, sheep dip and cattle washes, creosote and tar products, and sulphur compounds.

Northfleet White Lead Works, Ltd.—CAPITAL £80,000., in 30,000 preference and 50,000 £1. shares. This company has been formed to acquire, take over, and work effects and patents of the North- fleet White Lead Co., and to carry on the business of chemists. The subscribers to the memorandum of association are: A. Stevens, Worcester House, E.C., sec.; A. J. Bickmore, Hornsey Rise, N., gentleman; S. Cartwright, 14, Victoria Villas, N.W., chartered

accountant; O. Hamilton, Northfleet, chemical engineer; J. H. Williams, New Barnet, gentleman; J. Sturmer, 22, Ossory-road, S.E., gentleman; C. D. Steele, Sydenham, S.E., gentleman.

Thwaite, Tozer & Co., Ltd.—CAPITAL, £6,000, in £1 shares. The object of the company is to acquire rights and interests of B. H. Thwaite of certain patents, inventions, and to carry on the business of civil, mechanical, and metallurgical engineers and chemists. The subscribers to the memorandum of association are: J. H. Tozer, 95, Finsbury-pavement, E.C., merchant; W. Tozer, 95, Finsbury-pavement, E.C., merchant; B. H. Thwaite, 95, Finsbury-pavement, E.C., civil engineer; E. J. Thwaite, Brockley, housekeeper; J. W. Vickers, 95, Finsbury-pavement, E.C., draughtsman; E. F. West, 95, Finsbury-pavement, E.C., clerk; A. J. McMaster, 10, Eastcheap, E.C., merchant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Dye Stuffs H. E. Newton. 7330. April 10.
Fuel Economisers. R. Baron and T. W. F. Knight. 7355. April 11.
Improvement in mixing pulp for paper making. J. Mather and W. Knowles. 7464. April 12.
Improved apparatus for the distillation of ammoniacal liquor. F. M. Spence, D. D. Spence, and J. Gilchrist. 7485. April 12.
Improvement in the production of an indigo vat for dyeing with indigo. Read Holliday & Sons, Ltd., and H. Eindschadler. 7487. April 12.
Manufacture of permanganates of soda or potash from manganates of soda or potash. J. Brock and F. Hurter. 7512. April 12.
Smoke consuming appliances for steam boilers, &c. W. Crowther, A. Crowther, and F. Crowther. 7521. April 13.
Apparatus for filtering liquids, or for drying crystallised or other granular matters. J. Drummond. 7524. April 13.
Anti-incrustant for preventing boiler scale. R. Innes and W. Jackson. 7526. April 13.
Improved apparatus for the determination of butter fat in milk. C. R. C. Tichborne and C. J. Thompson. 7547. April 13.
Extracting oleine from tallow. J. Soler. 7562. April 13.
Colouring matters. H. E. Newton. 7580. April 13.
Improvement in the electrolytical decomposition of chlorides and mixtures thereof. F. M. Lyte. 7594. April 13.
Improved boiler compositions or solutions. F. A. Clayton. 7602. April 14.
Improvement in the continuous bleaching of sugar. L. E. A. Prangey. 7605. April 15.
Smoke consuming appliances. E. Harrison. 7701. April 15.
Apparatus for scouring or washing wool, &c. J. C. Walker, J. E. Stephenson, and A. Ambler. 7707. April 15.

Secondary batteries. P. Schoop. 7711. April 15.
Improvements in the process of tanning. J. S. Fairfax. 7712. April 15.
Disinfecting rags and other materials in a compact state. J. M. C. Paton and H. B. Ranson. 7735. April 15.

GERMAN PATENTS for week ending APRIL 29, 1893.

Specialy abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 12 A. 3,101. Preparation of Pure Chloroform. Actien Gesellschaft für Anilinfabrikation, Berlin.
- 12 F. 6,046. Preparation of Alumina Salts of Naphtholsulphonic Acids. Meister Lucius and Bruning, i/Hochst.
- 13 G. 7,809. Preparation of Bisulphite Compounds of Methyleneamido-phenols (addition to patent 68,707). Ges. für Chemische Industrie Basel.
- 22 C. 3,674. Preparation of α, α_1 -Amidonaphthol- β_2 -Sulphonic Acid (addition to patent 67,062). L. Cassella and Co., Frankfurt-a-Maine.
- 22 F. 6,447. Yellow and Red-brown Wool Dyes from Anthrachryson. Meister Lucius and Bruning, i/Hochst.
- 22 H. 11,753. Preparation of Azo Dyes of Amides, Anilides, and Naphthalides of Oxycarbonic Acids. Dr. F. v. Heyden Nachfolger in Radebeul.
- 23 B. 7,303. Sulphur Soap. F. D. Riedel, Berlin, N.
- 17 R. 7,448. Double Salts of Quinine quite Soluble in Water. F. B. Rigaud, Paris.
- 75 K. 10,133. Preparation of Sulphites of Lime and Magnesia (addition to patent 55,784). Kranz, in Thorn.
- 22 B. 14,218. Preparation of Auramine (addition to patent 53,614). Badische Anilin- u. Sodafabrik, Ludwigshafen a/Rh.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

E. PAMPHILON, A. SHAW, and E. A. SHAW, Burslem, under the style of the North Staffordshire Pneumatic Pulverizer Co., flint millers.
T. KIRKALDY, J. KIRKALDY, and A. W. KIRKALDY, paint and oil manufacturers and manufacturers of anti-fouling composition, East London Works, Garford-street, Poplar, E., and the Star Works, Meredith-street, Plaistow, E., under the style of John Kirkaldy and Son, so far as regards A. W. Kirkaldy.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

SINGLETON, RICHARD, Pocklington, Yorkshire, cake, seed, and manure merchant.

Adjudications.

HALE, JOHN HERBERT, Stanton Drew, Somersetshire, and Bristol, indiarubber merchant and electrician.

SINGLETON, RICHARD, Pocklington, Yorkshire, cake, seed, and manure merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM

LONDON.

Week ending April 15th.

Acetic Acid—
Holland, 6 pkgs. A. & M. Zimmermann
Alkali—
France, 110 c. Arnati & Harrison
Barytes—
Belgium, 36 cks. J. L. Lyons & Co.
" 38 W. Harrison & Co.
Germany, 20 G. Steinhoff
Bromide of Iron—
Germany, 30 pkgs. A. & M. Zimmermann
Chloride of Lime—
France, 24 pkgs. A. J. Smith
Caoutchouc—
Zanzibar, 1 c. Price, Boustead & Co.
E. Indies, 180 Jackson & Tidl
" 2 Arbathnot Ewart & Co.

U. States, 212 Prop. Bull. Wf.
E. Indies, 20 Wallace Bros.
Zanzibar, 33 " "
France, 5 Flageolet & Co
E. Indies, 4 Lewis & Peat
Carbonic Acid—
Holland, 25 pkgs. H. & G. Dutfield
" 73 T. Palmer
Carbonic Acid Gas—
Holland, 25 pkgs. J. Barber & Co.
Castor Oil—
France, 15 brls. J. T. Morton
" 10 cs. B. & N. Whvs. Co., Ltd.
E. Indies, 500 Kiero, Moakes & Co.
" 60 Anderson, Weber & Smith
Belgium, 50 A. Brown & Co.
Chemicals (otherwise undescribed)
Holland, 46 Phillipps & Graves
Spain, 23 pkgs. Burt, Boulton & Co.

Germany, 27 T. H. Lee
" 67 A. & M. Zimmermann
" 6 L. & I. D. Jt. Co.
Holland, 80 G. Rahn & Co.
" 28 R. Morrison & Co.
Germany, 38 pkgs. Phillipps & Graves
" 1 Herou, Peron & Co.
" 48 Pickford & Co.
France, 15 C. F. Gerhardt
Cream of Tartar—
France, 10 pkgs. B. & F. Wf. Co., Ltd.
Italy, 23 Howards & Sons
" 21 Galbraith, Pembroke & Co.
Holland, 41 Middleton & Co.
France, 5 M. Ashby, Ltd.
" 3 W. C. Bacon & Co.
" 3 G. Ward & Sons
Spain, 3 W. C. Bacon & Co.
Dextrine—
Germany, 20 pkgs. B. & N. Wf. Co., Ltd.

Dyestuffs—
Annatto
Ceylon, 60 pkgs. L. & I. D. Jt. Co.
France, 2 B. & F. Wf. Co., Ltd.
Anthracene
Spain, 20 pkgs. Burt, Boulton & Co.
Holland, 141 " "
Argols
Italy, 1,077 pkgs. B. Jacob & Sons
" 27 Thames S. T. & L. Co.
Cape, 6 L. & I. D. Jt. Co.
Divi Divi
E. Indies, 300 pkgs. Walker, Munie & Co.
Extracts
Germany, 10 pkgs. T. H. Lee
Denmark, 1 Evans, Fischer & Co.
" 1 Bailey & Loeban
U. S., 45 Beresford & Co.
France, 50 L. & I. D. Jt. Co.
" 2 Prop. Chmbls y Wf.

Chlorine—
459 pkgs. Beresford & Co.
1,135 Butler's Wf., Ltd.
670 E. Boustead & Co.
300 Brown & Elmslie
174 J. Greig
1,152 L. & I. D. Jt. Co.

Chlorine—
8 cts. Elkan & Co.
16 L. & I. D. Jt. Co.

Chlorine—
13 R. von Glehn & Sons
30 F. W. Heilgers & Co.
9 Steinthal & Co.

Chlorine—
1,760 pkgs. Clarke & Smith
253 Baxter & Hoare
4,000 A. Hagan

Chlorine—
29 pkgs. Prop. Bull Wf.
69 Lewis & Peat

Chlorine—
27 pkgs. G. Wheatley & Co.

Chlorine—
129 pkgs. Williams, Torrey & Co., Ltd.
250 Beresford & Co.
100 W. Shelcott
50 J. Kitchin, Ltd.
100 W. France & Co., Ltd.

Chlorine—
1 t. B. & N. Wf. Co., Ltd.
8 L. & I. D. Jt. Co.
44 Leach & Co.
39 Sawyer, Sons & Co.
8 Beresford & Co.

Chlorine—
205 pkgs. Union L. Co., Ltd.
95 L. & I. D. Jt. Co.
89 H. A. Litchfield & Co.
114 J. Swire & Sons
100 Hicks, Nash & Co.
110 Major & Field

Chlorine—
10 t. Mavro, Valieri & Co.

Chlorine—
3 pkgs. B. & N. Wf. Co., Ltd.

Chlorine—
9 cks. R. Baelz & Co.

Chlorine—
139 pkgs. Union L. Co., Ltd.
50 J. Barber & Co.
100 J. Anderson & Co.

Chlorine—
50 pkgs. 306 c. D. Thomas
100 520 H. A. Litchfield & Co.
25 150 Page, Son & East
500 500 L. Norman
20 125 H. Evans
200 200 Devitt & Hett
475 1,458 Prop. Climblin's Wf.
8 44 Beck & Pollitzer
50 270 Pillow, Jones & Co.
250 250 L. & I. D. Jt. Co.
2,400 2,651 R. G. Hall & Co.
75 412 T. M. Duche & Sons
300 300 Barrett, Tagant & Co.
322 322 L. & I. D. Jt. Co.
600 600 Baxter & Hoare
1,000 1,000 J. Barber & Co.
13 100 J. Knill & Co.
50 50 Prop. Sun Wf.

Chlorine—
100 F. Boehm
50 N. S. S. Co., Ltd.

Guano—
Germany, 530 t. Anglo-Contl. Guano Wks.
Sweden, 60 Anglo-Swedish Co., Ltd.

Manure—
Germany, 67 t. F. W. Berk & Co., Ltd.
50 Union L. Co.
U. States, 16 C. A. & H. Nichols
A. Turkey, 2 F. W. Bowyer & Co.
Germany, 25 W. Belchin
200 Anglo-Contl. Guano Wks.

Methyl Alcohol—
Belgium, 16 drms. Stein Bros.

Naphthol—
Holland, 4 pkgs. Philipps & Graves

Ochre—
Holland, 18 pkgs. Philipps & Graves
Germany, 3 cs. " "
U. States, 14 J. Watson & Co.
France, 32 cks. Stobbs & Co.
" 7 O'Hara & Hoar

Painters' Colours—
U. States, 50 pkgs. W. A. Nunn
" 5 Magee, Taylor & Co.
Holland, 2 cks. R. Baelz & Co.
" 9 Becker & Ulrich
Germany, 10 pkgs. T. H. Lee
" 5 Philipps & Graves
France, 6 Flageolet & Co.
Austria, 5 M. D. Co.
E. Indies, 3 L. & I. D. Jt. Co.
Germany, 4 Craven & Co.
" 3 H. Lambert
France, 8 Hernu, Peron & Co.
U. States, 12 Beck & Pollitzer
" 15 J. Hartley & Co.
" 100 brls. M. Ashby, Ltd.
" 50 W. Caudery
" 50 pkgs. A. C. Davey & Co.
Germany, 4 L. & I. D. Jt. Co.
Holland, 1 Philipps & Graves
" 5 W. H. Carey & Sons
Belgium, 13 T. Palmer

Paraffin Wax—
U. States, 597 pkgs. H. Hill & Son
" 700 brls. J. H. Usmar & Co.
" 100 L. & N. W. Rly.

Pearl Ash—
France, 70 c. Petri Bros.

Phosphate Rock—
France, 175 t. Miller & Johnson
" 155 Anglo-Contl. Guano Wks.
Holland, 5 Coml. Lightge. Co.

Potassium Bicarbonate—
Holland, 20 pkgs. A. & M. Zimmermann

Potassium Carbonate—
France, 30 c. J. A. Reid
" 210 H. Grey, jun.
Germany, 103 C. Webster

Potassium Cyanide—
Holland, 5 pkgs. Philipps & Graves

Potassium Muriate—
France, 30 pkgs. Carey & Sons

Potassium Sulphate—
Germany, 15 pkgs. Union L. Co., Ltd.

Pyrites—
Spain, 600 t. T. S. Whitehead & Co.

Rosin—
U. States, 700 brls. F. & S. Chiesman & Co.
" 200 Produce Brokers Co.

Saltpetre—
E. Indies, 439 bags Co-op Ltrge. Association
" 161 L. & I. D. Jt. Co.
Germany, 23 Brown & Elmslie

Sodium Acetate—
France, 9 pkgs. S. F. Waters & Co.

Sodium Chloride—
France, 50 pkgs. A. Hughes

Stearine—
Belgium, 66 pkgs. C. S. Lovell
U. States, 8 cks. Tingle, Jacobs & Co.
Holland, 151 bags. H. Hill & Sons
U. States, 19 cks. Beresford & Co.

Sulphur—
Italy, 10 t. H. S. Smith

Tallow—
U. States, 14 cks. R. Tucker & Co.
Melbourne, 136 A. B. Curtis & Co.
" 201 Kaul & Haenlein
Sydney, 927 Elkan & Co.
" 358
" 119 Ross & Deering
" 133 Pillow, Jones & Co.
" 72 Hoare, Wilson & Co.
New Zealand, 10 " "
" 58 Beresford & Co.
" 9 Culverwell, Brooks & Co.
Queensland, 149 Goad, Rigg & Co.
Sydney, 457 A. B. Curtis & Co.
" 118 Horne & Co.
" 128 C. Tennant, Sons & Co.
" 236 J. Owen
Melbourne, 143 " "
" 140 Sollas & Sons
New Zealand, 18 Flack, Chandler & Co.
" 76 Sollas & Sons
" 42 J. Morrison & Co.

Tartaric Acid—
Holland, 6 pkgs. B. & F. Wf. Co., Ltd.
" 4 F. C. Devon & Co.
France, 5 Middleton & Co.
" 19 D. & F. Wf. Co., Ltd.
Italy, 33 M. D. Co.
France, 7 cks. G. S. N. Co.
Germany, 2 H. Lambert

Ultramarine—
Holland, 56 cks. Thames S. T. & L. Co., Ltd.
Belgium, 18 pkgs. W. Harrison & Co.
Holland, 7 cs. Glaesser & Vogeler

Varnish—
Belgium, 14 pkgs. Stobbs, Wilson & Co.
U. States, 15 Beck & Pollitzer
" 27 Magee, Taylor & Co.
" 10 Dawson Bros.

White Lead—
Germany, 25 brls. M. Ashby, Ltd.
" 10 cks. Wilkinson, Heywood & Co.
" 26 Spies, Bros. & Co.
Holland, 10 P. Jantzen
" 30 A. & M. Zimmermann
Belgium, 24 Leach & Co.

Zinc Oxide—
Holland, 157 brls. M. Ashby, Ltd.
Germany, 50 " "
" 25 S. Ward & Co.
Holland, 50 pkgs. Prprs. Dowgate Dock

LIVERPOOL.

Week ending April 13th.

Acetic Acid—
Rotterdam, 1 ck.

Asbestos—
Antwerp, 120 brls.

Boracic Acid—
Leghorn, 12 cks. Pickford & Co.
" 29

Boracite—
Panderno, 300 t. Roberts & Evans

Borate of Lime—
Valparaiso, 750 sks.

Caoutchouc—
Valparaiso, 69 pkgs. F. M. Wolff

Chrome Ore—
Baltimore, 24 cks. P. McQuie & Son

Colours—
Rotterdam, 10 cs. 8 cks.

Cream of Tartar—
Spain, 7 cks. 5 pps.

Dyestuffs—
Argols
Patras, 11 cs. M. D. Frangopulo
Extracts
Nantes, 585 cks. Bark Extract Co.
Colon, 195 cs. Benico Novello & Co.
Philadelphia, 15 brls.
Fustic
Savannah, 998 logs. G. H. Muller
Carthage, 4,207 Mildred Goyeneche
Colon, 750 D. Midgley & Son
" 1,286 ps. Leech, Harrison & Co.
Myrabolams
Bombay, 1,466 bgs.
Orchella
Lisbon, 17 sks. J. Martin & Son
Sumac
Palermo, 150 bgs. J. Kitchin, Ltd.
" 550
Valonia
Smyrna, 732 bgs.
Patras, 384 C. G. Papayanni & Jeremias
Marathonisi, 282½ t. " "

Glucose—
New York, 100 bils.
Baltimore, 200
New York, 100 T. M. Duche & Co.

Iodine—
Valparaiso, 39 brls.

Logwood—
Laguna de Terminos, 5,545 quintals. F. Brownhill & Co.

Manganese Ore—
Bordeaux, 24 sks. R. J. Francis & Co.

Paraffin Scale—
Philadelphia, 250 brls.

Pyrites—
Huelva, 2,490 t. Matheson & Co.
" 1,545 Tennants & Co.
" 1,742 Matheson & Co.

Rosin—
Baltimore, 600 brls.
Bayonne, 533 R. J. Francis & Co.

Soap—
Naples, 8 cs.
Rotterdam, 4
Bari, 51

Soapstone—
Genoa, 500 bgs. W. Harrison & Co.
" 300

Sulphur—
Catania, 1,000 bgs. 50 t. 20 brls.

Sulph Silver—
Colon, 10 cs. Sanchez & Gaffron

Tallow—
San Nicolas, 387 cks.
Zarate, 4 J. Nelson & Son, Ltd.
New York, 40 bds.
Boston, 40 Stollerfoht, Sons & Co.
River Plate, 230 cks.
Philadelphia, 48 Stollerfoht, Sons & Co.
" 75 60 tcs. 140 brls.

Tar—
Archangel, 1,310 brls.
Hamburg, 20 cks.

Tartar—
Bordeaux, 10 cks.
Naples, 3

Tartaric Acid—
Rotterdam, 7 cks.

Waste Salt—
Hamburg, 1,102 bgs.

Zinc Oxide—
Antwerp, 2 cs.
Rotterdam, 60 cks.

HULL.

Week ending April 15th.

Acetate—
New York, 815 bgs. Wilson, Sons & Co., Ltd.

Ammonia—
New York, 10 pks. Wilson, Sons & Co., Ltd.

Arsenic — Hamburg, 15 kgs. Wilson, Sons & Co., Ld.			Tallow — New York, 100 hds. Wilson, Sons & Co., Ld.			Painters' Colours — Antwerp, 2 cks.			GOOLE. <i>Week ending April 24th.</i>		
Barytes — Antwerp, 63 cks. Bailey & Leatham Bremen, 61			Tartaric Acid — Rotterdam, 12 cks. W. & C. L. Ringrose " 2 G. Lawson & Sons			Potash — Rotterdam, 45 cks. J. Rankine & Son Hamburg, 11			Alkali — Hamburg, 30 cks.		
Chemicals (otherwise undescribed) Hamburg, 21 cks. 325 pkgs. Wilson, Sons & Co., Ld.			Turpentine — Libau, 126 brls.			Potassium Carbonate — Hamburg, 10 cks.			Antimony — Boulogne, 1 cks.		
Bremen , 1 Rotterdam , 2 Hutchinson & Son			Ultramarine — Rotterdam, 8 cks. Hutchinson & Son			Rosin — New York, 1,650 brls.			Benzol — Rotterdam, 3 cks.		
Colours — Rotterdam, 4 pks. W. & C. L. Ringrose " 4 cks. Hutchinson & Son " 19 A. Sanderson & Co. Hamburg, 8 Bremen, 6 1 cs. Veltmann & Co. " 3 2 J. Pyefinch & Co. Rotterdam, 1 W. S. Merriken			Varnish — New York, 1 bl. Wilson, Sons & Co., Ld.			Silica — Hamburg, 200 bgs.			Dyestuffs — Alizarine Rotterdam, 30 brls. 4 pkgs. Fustic Monte Christi, 94 t.		
Cottonseed Oil — Trieste, 1,400 brls. Wilson, Sons & Co., Ld.			White Lead — Rotterdam, 16 cks. A. Sanderson & Co. Antwerp, 54 Bailey & Leatham Rotterdam, 12 Hutchinson & Son			Soap — Rotterdam, 2 cs. J. Rankine & Son Sodium Acetate — Antwerp, 20 cks.			Dyestuffs (otherwise undescribed) Boulogne, 4 cs. 11 ds. Ghent, 1		
Dyestuffs — Alizarine Rotterdam, 23 cks. W. & C. L. Ringrose Extracts Fiume, 200 brls. Madder Rotterdam, 1 cs. J. Pyefinch & Co. Sumac Palermo, 40 bgs. Wilson, Sons & Co., Ld. Valonia Dragamestre, 97 t.			Zinc Oxide — Rotterdam, 50 brls. Hutchinson & Son			Tar — New York, 440 brls.			Farina — Hamburg, 7 380 bgs. Delfsyhl, 3,970		
Farina — Stettin, 50 bgs. Wilson, Sons & Co., Ld. Harlingen, 870 Hamburg, 100 Wilson, Sons & Co., Ld.			GLASGOW. <i>Week ending April 20th.</i>			Tartar Emetic — Hamburg, 4 cks.			Logwood — Monte Christi, 464 t.		
Glucose — Stettin, 12 cks. 500 bgs. New York, 25 bls.			Alum — Rotterdam, 20 cks. J. Rankine & Son			Ultramarine — Rotterdam, 1 cs. 2 cks. J. Rankine & Son			Potash — Dunkirk, 17 dms.		
Manure — Lysekil, 1,255 bgs. Hare Bros.			Barium Sulphate — Antwerp, 350 bgs. 22 cks.			Varnish — New York, 1 kg. 1 cs.			Pyrites — Huelva, 1,200 l.		
Paraffin — Hamburg, 10 bgs. Wilson, Sons & Co., Ltd. New York, 560 pks. "			Barytes — Rotterdam, 46 cks. J. Rankine & Son " 92			Waste Salt — Hamburg, 1,768 bgs.			Saltpetre — Rotterdam, 100 bgs. Hamburg, 4 cks.		
Pitch — Rotterdam, 10 cks. Hutchinson & Son			Borax — Hamburg, 1 cs.			White Lead — Rotterdam, 111 cks. J. Rankine & Son			Size — Ghent, 2 cks.		
Soap — Rotterdam, 1 cs. P. S. Phillips Bergen, 1 Wilson, Sons & Co., Ltd. New York, 8. "			Colours — Rotterdam, 12 cs. 13 cks. J. Rankine & Son " 1 33 Hamburg, 12			Zinc White — Stettin, 65 brls. Rotterdam, 150 cks. J. Rankine & Son			Waste Salt — Hamburg, 2 cks. 200 bgs.		
Stearine — Rotterdam, 22 brls. Wilson, Sons & Co., Ld. Aalesund, 15			Dextrine — Hamburg, 30 l'gs.			TYNE. <i>Week ending April 15th.</i>			GRIMSBY. <i>Week ending April 14th.</i>		
			Dyestuffs — Alizarine Rotterdam, 2 cks. 1 cs. J. Rankine & Son " 55 Extracts Antwerp, 4 cks. Logwood Jamaica, 412 t. M'Arthur, Scott, & Co. Belize, 103			Alum Earth — Hamburg, 18 cks. Tyne S. S. Co.			Chemicals (otherwise undescribed) Antwerp, 2 cks. Hamburg, 13 pkgs.		
			Farina — Stettin, 400 bgs. Antwerp, 20 Hamburg, 100 Delfsyhl, 500 bls.			Barytes — Rotterdam, 48 cks. Tyne S. S. Co.			Dyestuffs — Indigo Rotterdam, 5 pkts.		
			Glucose — New York, 199 brls.			Colours — Antwerp, 2 cks. Tyne S. S. Co. Hamburg, 4 "			Farina — Hamburg, 30 bgs.		
						Cryolite — Copenhagen, 134 cks.			Kainit — Hamburg, 660 bgs.		
						Pyrites — Copenhagen, 200 t.			Manure — Rotterdam, 20 l'gs.		
						Salt — Hamburg, 102 bgs. Tyne S. S. Co.			Size — Antwerp, 3 cks.		
						Soap — Antwerp, 2 cs. Tyne S. S. Co.			Zinc Ashes — Antwerp, 14 cks.		
						Ultramarine — Hamburg, 5 cs. Tyne S. S. Co.					
						White Lead — Antwerp, 28 brls. Tyne S. S. Co.					

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending April 19th.</i>			Ghent , 304 6 3,314 Dunkirk , 158 2 1,655 Sumbaya , 300 3,925			Caustic Soda — Brisbane, 4 t. £45			Coal Products — Aniline New York, 10 dms.		
Acids — Rio de Janeiro, 2 cs. £15 Oporto, 2 cks. 13 Calcutta, 4 25			Arsenic — Terneuzen, 9 t. 4 c. £125			Chemicals (otherwise undescribed) Melbourne, 11 c. £17 Oporto, 6 t. 7 191 Natal, 25 cs. 50 Algoa Bay, 3 20 drs. 46			Anthracine Rotterdam, 241 cks.		
Alkali — Melbourne, 5 t. 6 c. £33 Mauritius, 2 3 28 Oporto, 12 6			Bone Ash — Mauritius, 145 t. 14 c. £595			Citric Acid — Amsterdam, 5 kgs. £40 Cologne, 7 c. 56 Copenhagen, 1 8 Calcutta, 3 25 Hamburg, 1 t. 2 3 cks. 204 Odessa, 8 65 Oporto, 2 3 25 Algoa Bay, 2 18 Smyrna, 1 kg. 10 Rotterdam, 10 30 Passages, 10 27 Seville, 2 61 New Plymouth, 1 8			Benzol Rotterdam, 30 cks. 21 pkts.		
Ammonia (Liquid) — Natal, 1 t. £57			Borax — Oporto, 1 t. 1 c. £34 Copenhagen, 4 11			Coal Tar Dyes Boston, 13 cks.			Creosote Oil Treport, 15 brls.		
Ammonium Carbonate — Oporto, 5 c. £8			Calcium Phosphide — Amsterdam, 2 c. £10			Naphtha Brussels, 9 brls. Wellington, 10 drs. Auckland, 10			Naphthaline Antwerp, 25 cks. Le Treport, 20 New York, 38 Billao, 100 kg. Hamburg, 1 Treport, 1 Philadelphia, 22		
Ammonium Sulphate — Rotterdam, 295 L. £3,272 Hamburg, 290 14 c. 3,500 Martinique, 30 344			Carbolic Acid — Rotterdam, 24 cks. £75 Rio de Janeiro, 1 t. 2 c. 122 pkgs. 88 Cape Town, 10 dms. 17 Demerara, 7 cks. 18								
			Carbon Bisulphide — B. Ayres, 100 drs. £50								

Paraffin Wax			Soda Crystals—			Borate of Lime—			Bordeaux,			1,999		
Auckland,	50 cs.	£148	Sydney,	30 t. 5 c.	£86	Antwerp,	119 t. 15 c.	£1,415	Fiume,	128	4	2	50	
Pitch			B. Ayres,	20	80				Ancona,	3	2	2	703	
Catania,	50 brls.	£13	Sodium Bicarbonate—			Borax—			Dunedin,	1	10		24	
Antwerp,	187 t.	271	Demerara,	10 c.	£5	Carril,	4 c 2 q.	£6	Galatz,	1			16	
Philadelphia,	2,667 bgs.	464	Natal,	1	8	Rotterdam,	3 t. 15	112	Marseilles,	6	16		109	
Hong Kong,	529	249	Sodium Carbonate—			Christiania,	10	15	Piræus,	1	5		20	
Mauritius,	10	25	Rio de Janeiro,	4 c.	£10	Rosario,	10	14	Syria,	2	9		39	
Sydney,	9	12	Sodium Tartrate—			Alexandria,	10 3	16	Lisbon,	5	2		82	
Galatz,	50	25	Oporto,	3 cks.	£11	Ponce,	5	7	Trieste,	25	5		404	
Tenuesen,	560	784	Sulphur—			Montreal,	1	29	Venice,	84	8	3	1,344	
Tar			Sydney,	2 t.	£19	Nantes,	2 5	60	Cream of Tartar—					
Surabaya,	25 brls.	£12	Madeira,	100 brls.	81	Calomel Chloride—			Savanna,	1 c. 2 q.		£7		
Samarang,	100	45	Superphosphate—			Rangoon,	3 t. 1 c.	£8	St. John's, Nfld.,	2			9	
Batavia,	25 100 mls.	30	Rotterdam,	122 t.	£488	Candles—			Dyestuffs—					
Gothenburg,	175	114	Tartaric Acid—			Genoa,	695 cs.		Extracts					
Alger Bay, 90 dms.		11	Napier,	4 c.	£16	Kingston, Jam.,	20		Philadelphia,	5 cks.				
St. John's, Nfld.,	60 pkgs.	26	Melbourne,	3 t. 10	348	Lagos,	156		Dyestuffs (otherwise undescribed)					
Baltimore,	100	55	Sydney,	4	22	Shanghai,	750		Boston,	25 cks.				
Mauritius,	25	15	Cape Town,	15	76	Axim,	50		Canada,	5 100 bgs.				
Tar Oil			Fremantle,	3	12	Calcutta,	280		Carril,	10 bxs.				
Gothenburg,	25 brls.	£22	Zinc Sulphate—			Havanna,	40		Genoa,	1				
Tripoli,	26	20	Rotterdam,	4 cks.	£12	Lisbon,	470		Lisbon,	2				
Paris,	12 cks.	17				Malta,	165		Epsom Salts—					
Galveston,	6,724	2,942				Mossamedes,	50		B. Ayres,	10 cks. 20 cs.				
Coal Products (otherwise undes.)						Oporto,	100		Bahia,	10 brls.				
Auckland,	40 dms.	£34				Sherbro,	1,000		Glycerine—					
Copper Sulphate—						Teneriffe,	200		Rotterdam,	10 t.		£290		
B. Ayres,	2 t.	£34	LIVERPOOL.			Tunis,	50							
Boulogne,	5	90	<i>Week ending April 19th.</i>			Carbolic Acid—								
Oporto,	5	75	Alizarine Oil—			Hong Kong,	14 c.	£13						
Lisbon,	25	360	Lisbon,	2 cks.		Baltimore,	21 cs.	120						
Cream of Tartar—			Alum—			Calcutta,	2 t.	58						
Auckland,	10 c.	£45	Carril,	1 t.	£5	Hamburg,	15	17						
Calcutta,	17	15	Rosario,	1 19 c.	9	Rotterdam,	4 19	360						
Cape Town,	4 10 kgs.	40	Penang,	2 7	13	Odesa,	16	56						
Fremantle,	3	15	Malta,	12	3	Rouen,	2 4	39						
Melbourne,	20 79	18	Portland M.,	3 15	18	Caustic Soda—								
Sydney,	4 cs.	18	Maranham,	1 2	6	Alger Bay,	25 cs.							
Greyouth,	4	17	Trebizond,	1 15	8	Amsterdam,	20 dms.							
Meisfants—			Mersyne,	1 11	7	La Guayra,	30							
Kingstown,	11 pkgs. 20 dms.	£41	Beyrout,	3 13	18	Madeira,	6							
Hong Kong,	2 c.	27	Ammonia Alum—			Maracaibo,	10							
Natal,	36 180 kgs.	104	Monte Video,	7 t.	£20	Montreal,	735							
Cape Town,	56	48	Ammonium Carbonate—			Newcastle,	40							
Guano—			Carril,	5 c. 1 q.	£7	New York,	1,409							
St. Vincent,	40 t.	£430	Genoa,	1 t.	£28	Odesa,	500							
Manure—			Rotterdam,	1	28	Oporto,	70							
Trinidad,	5 t.	£40	Sao Paulo,	1 1 q.	7	Puerto Cabello,	20							
St. Kitts,	40	400	Ammonium Chloride—			Quebec,	402							
Barbadoes,	126 18 c.	1,116	Malta,	20.	£3	Rangoon,	18							
Madras,	3 11	36	Ashowa,	12	22	Rio de Janeiro,	10 bxs.							
Demerara,	87	900	Odessa,	1 t. 2	36	San Sebastian,	100							
Guadeloupe,	371 8	3,625	Constantinople,	13	20	Toronto,	50							
Marinique,	172 8	1,034	Galatz,	4	6	Trieste,	15							
Kingston,	2	10	Ammonium Sulphate—			Nantes,	114							
Rouen,	45	220	Valencia,	77 t. 6 c.	£964	Bari,	18							
Nitric Acid—			Hamburg,	10 2	126	Bilbao,	63							
Rio de Janeiro,	17 c.	£40	Antwerp,	15 4	190	Boston,	50							
Phosphoric Acid—			St. John's, Nfld.,	1 1 2 q.	14	Cartagena,	25 kgs.							
Mauritius,	50 t. 2 c.	£849	Grand Canary,	26 5	336	Chicago,	50 23							
Phosphorus—			Las Palmas,	3	39	Detroit,	20							
Doodie,	15 c.	£171	Barbadoes,	65 12 2	795	Hamburg,	50							
Potash Crystals—			Baltimore,	50	535	Hong Kong,	50							
Dunkirk,	8 c.	£56	Anthracene—			Lisbon,	135							
Brussels,	5	22	Rotterdam,	26	£750	Messina,	50							
Potash Salts—			Arsenic—			Ontario,	185							
Toronto,	20 kgs.	£71	Paysandu,	9 c.	£10	Paysandu,	50							
Potassium Bicarbonate—			Barium—			Philadelphia,	100							
Calcutta,	11 c.	£23	Lisbon,	1 ck.		Santander,	81							
Auckland,	15	32	Bisulphide of Carbon—			Seville,	543 4 cks. 66 brls.							
Potassium Chlorate—			Rio de Janeiro,	9 c.	£20	Chemicals (otherwise undescribed)								
Yokohama,	9 c.	£12	Bleaching Powder—			Mersyne,	4 c	£6						
Potassium Cyanide—			Boston,	1,263 cks.		Alexandria,	4 t. 5	136						
Yokohama,	6 cs.	£16	Hamburg,	46		Odessa,	2 cks. 2 12 1 q.	89						
Sal ammoniac—			Leghorn,	45		Boston,	4 14	104						
Rosario,	10 c.	£17	Montreal,	18		Citric Acid—								
Madras,	11 cks.	65	New York,	754 175 brls.		Vigo,	4 c.	£32						
Odessa,	7 t. 12	256	Rouen,	30		Corunna,	6	49						
Sulphate—			Bombay,	10	10 cs.	Iloilo,	2	9						
Antwerp,	310 t.	£542	Cartagena,	10		Citro Chloric Acid—								
Sulphate			Chicago,	10 bxs.		Lisbon,	3 c. 2 q.	£18						
Bahia,	6 t. 1 c.	£137	Genoa,	90		Cobalt Oxide—								
Rio de Janeiro,	8 18	200	Carril,	6	10	Valencia,	1 c.	£35						
Oporto,	2 5	113	Calcutta,	150		Canada,	2 q.	14						
Vigo,	2	49	Bones—			Copperas—								
Cape Town,	1 11	32	Rouen,	13 t. 17 c.	£240	Smirna,	5 t.	£10						
Sheep Dip—			Boracic Acid—			Halifax,	3 7 c. 1 q.	6						
Natal,	510 dms	£60	Hamburg,	4 t. 18 c. 2 q.	£175	Boston,	3 1	7						
			Yokohama,	1	38	Varna,	4	10						
			Santander,	3	5	Copper Sulphate—								

Painters' Colours—

Boston,	1 ck.	
Nassau,	2	12 pkgs.
Pisagua,	12	
Rio de Janeiro,	2	2 cs.
St. John's, N. P.,	2	92 kgs.
Antwerp,	16	
Bombay,	655	
Bremen,	42	80
Canea,		2 brls.
Cape Town,		12 dms.
Colon,		10 pkgs.
Fernando Po,		3
Galt,	8 cs.	
Guelph,	17	3 4
Hamburg,		20 bgs.
Havanna,		7
Malta,	1	60
Manaos,	13	7
Montreal,	8	6
New York,	7	10 100 tins.
Odessa,	42	10 kgs.
Paysandu,		15
Santander,		10

Paraffin Wax—

Bordeaux,	133 bgs.	84 cs.
Genoa,	3	83 cks.
Leghorn,	37	
San Sebastian,	155	

Phosphorus—

B. Ayres,	1 t. 10 c.	£223
M. Video,	1	3 q.
Shanghai,	22 cs.	120
Oporto,	1	16
Trinidad,	2	22
Santiago de Cuba,	2	22

Pitch—

Coquimbo,	20 brls.	
Galatz,	100	
Ibrail,	10	

Potash—

Corunna,	5 c. 2 q.	£7
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Potassium Bicarbonate—

Chicago,	1 t. 1 c.	£30
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Potassium Bichromate—

Alexandretta,	7 c. 1 ck.	£20
Lisbon,	15	42
Passages,	1 t. 13	65

Potassium Carbonate—

Valencia,	2 t. 2 c.	£28
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Potassium Chlorate—

Carril,	16 c.	£67
Malaga,	2	5
Corunna,	1 t.	84
New York,	17	5 1,095
Singapore,	1	10 78
Havanna,	5	15
Genoa,	1	10 87
Naples,	1	5 74
M. Video,	16	47
Santiago de Cuba,	1	117
Hiogo,	25	1,545
Shanghai,	9	10 531
San Juan,	1	61
Bari,	10	38
Manila,	4	16
Vera Cruz,	12	40
Oporto,	1	67
Antwerp,	10	96
Rotterdam,	2	114
Toronto,	2	8
Rosario,	6	25

Potassium Prussiate—

Algoa Bay,	1 c.	£5
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Salt—

Algoa Bay,	13 t.	5 c.
B. Ayres,	20	2
Halifax,	600	
Lagos,	200	
Manaos,	17	3
Miramichi,	300	
Newfoundland,	10	
Old Calabar,	182	
Opobo,	53	12
Passabiac,	610	
Portland, Or.,	60	
Quebec,	2,618	1
Richibucto,	251	
Rio de Janeiro,	2	15 40 cs.
Valparaiso,		50
Warri,	16	15
Yokohama,	2	3
Mollendo,	1	
Portland, M.,	264	18
Stockholm,	150	
Assinee,	25	

Barbadoes,	100	
Warre,	17	17
Anamaboe,	20	17
Bathurst,	283	14
Belize,	30	
Benin,	17	17
Black Point,	3	
Boma,	13	7
Bonny,	87	5
Boston,	80	
Brussels,	2	
Cameroon,	20	
Cape Coast,	12	10
Christiania,	10	
Ghent,	100	
Grand Bassa,	24	11
Iceland,	165	
Iquique,	3	
Cape Town,	59	12
Antwerp,	160	
Callao,	4	18
Landana,	5	
Matadi,	15	12
Nash Creek,	35	
New York,	130	
Rotterdam,	253	
San Francisco,	50	
Sydney,	20	
Trinidad,	69	1

Saltcake—

Philadelphia,	125 t.	12 c.	£298
Baltimore,	196	10	482

Saltpetre—

Maranham,	2 t.	9 c.	1 q.	£44
Maceio,	1	11		36

Sheep Dip—

B. Ayres,	28 t.	12 c.	£553
Canada,	1	16	1 q. 61

Soap—

Akassa,	12 cs.	50 bxs.	
Algoa Bay,	50	3 462	36 kgs.
Baltimore,		20	
Barbadoes,		507	
Batanga,		25	
Belize,		800	
Beybeach,		50	
Bombay,	5	350	
Brussels,	400		
B. Ayres,	2		
Cairo,	15		
Cape Town,		2,234	
Christiania,	170	120	
Copenhagen,		507	
E. London,	102	3,044	3 bds.
Half Jack,		20	
Havre,	409		
Lima,	2		
Malta,	10		
Maranham,	1	50	
Montreal,	334		
Penang,	5		
Port Elizabeth,	50	650	1
Rotterdam,		25	
St. Johns, Nfld.,	20	100	
Singapore,	50		
Smyrna,	6		
Toronto,	750		
Trinidad,		200	
Valparaiso,		201	
Accra,		170	
Axim,		20	
Boma,		15	
Bombay,	9	650	
Bonny,			250
Calcutta,	1		
Cameroon,		150	
Conakry,		40	
Curacao,		50	
Degama,		200	
Ghent,		30	
Gibraltar,		225	
Grand Bassa,		40	
Hong Kong,		400	
Jones River,		100	
Kinsembo,		50	
Lagos,		28	
Lisbon,	10		
Loanda,		50	
New York,	115	73	
Opobo,		5,000	
Oporto,	1		
Pt. Natal,		50	
St. Lucia,		120	
Shanghai,		4,775	
Sierra Leone,		50	
Trinidad,		500	
Old Calabar,		250	

Soda—

Hiogo,	50 cs.	
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Soda Alkali—

Buffalo,	60 brls	
Odessa,	85	

Soda Ash—

Antwerp,	5 cks.	80 bgs.	
Baltimore,	413	3,676	
Boston,	521	3 272	
Brisbane,	130		
B. Ayres,	20		450 brls.
Calcutta,	7		
Copenhagen,		4,475	
Madeira,	4		
Maranham,			10
Oporto,	30		
Philadelphia,	864	3,086	
Puerto Cabello,	15		
Rio de Janeiro,	204		60
New York,	1,800	10,184	
Barcelona,	72		
Cadiz,	25		
Carthagena,	10		
Christiania,	5		
Genoa,	22		
Leghorn,	2		
Montreal,	88		
Naples,	2		
Odense,	19		
Paysandu,			50
Vera Cruz,	20		
Yokohama,			50
Venice,	2		

Soda Crystals—

Bombay,	10 cks.	62 kgs.	
Boston,			667 brls.
Halifax,		25	
Malta,		50	
M. Video,	8	53	
Philadelphia,	190	280	
Rosario,	8		
St. Johns, Nfld.,		40	10
Calcutta,		14	
Charlotte Town,		15	65
Colombo,		5	
Lisbon,	4		20
Pernambuco,			
Toronto,		135	

Sodium Baborate—

Rio de Janeiro,		10 cs.	
Rotterdam,	6 brls.		
Yokohama,		5	

Sodium Bicarbonate—

Alexandria,	15 kgs.	50 brls.	
Barcelona,	100		
Halifax,	35		
Havana,	20		4 cks.
Kingston, Ont.,	100		
Lisbon,	100		
London, Ont.,	50		10
Marseilles,	8		8
Montreal,	500		
Rouen,		20	
St. Johns, Nfld.,	10		
Yokohama,	500		
Antwerp,	10		
Berlin, Ont.,	100		
Bombay,	63		
Bremerhaven,			19
Calcutta,	625		
Charlotte Town,	165		
Copenhagen,	148		25
Dunedin,	50		
Havre,	50		
Madras,	300		
Nantes,	70		
Oporto,	20		
Rosario,	50		
Rotterdam,	100		
Santos,	100		
Seville,	20		
Smyrna,	50		
Sydney,	347	33	
Toronto,	225	70 bgs.	1
Valencia,	250		

Sodium Chlorate—

Hamburg,	34 brls.	80 kgs.	
New York,		60	
Rotterdam,		70	

Sodium Fluorate—

Hamburg,	50 bgs.		
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Sodium Nitrite—

Charlotte Town,	8 bgs.		
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Sodium Silicate—

Lisbon,	20 cks.		
Oporto,	10		
Barcelona,		40 brls.	
Brisbane,		8	
Seville,	45		

Sodium Sulphate—

Hamburg,	81 cks.		
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Sulphur—

Sagua la Grande,	4 t.	6 c.	£24
Maranham,		6	2
Boston,	408	5	1,665
Sydney,	4		33
Dunedin Wharf,	1		9

Sulphuric Acid—

Rio Grande do Sul,	29 c.	
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Superphosphate—

Nantes,	210 t.	4 c.	19
Las Palmas,			1

Tallow—

Bilbao,	67 brls	
Bombay,	1 cks.	
Valencia,	17	
Venice,	24	

Tar—

Half Jack,	3 cks.	
Philadelphia,		100 lbs.
Roma,	5	
B. Ayres,	340 dms.	

Tartaric Acid—

Montreal,	1 t.	1 c.
Loango,		10
Ililo,		4
Havana,		2

Tin Crystals—

Lisbon,		3 c.
Barbadoes,		11

Tin Oxide—

Canada,		2
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Turpentine—

Manilla,	50 dms.	
Callao,	23 cks.	

Varnish—

Antofagasta,	2 cks.	
Barcelona,		4 cks.
Bombay,		20 dms.
Callao,		4
Valparaiso,	9	
Cadiz,		1
Hiogo,		1
Cape Town,	5	
La Guayra,	4	
Manilla,	10	

HULL.

Week ending April 1914

Alkali—

Bergen,	5 cks.	
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Ammonium Sulphate—

Dunkirk,	2,059 bgs.	
Ghent,	900	

Asbestos—

Hango,	3 cs.	
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Basic Slag—

Oxelosund,	550 tms.	
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Benzol—

Ghent,	8 cks.	
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Bleaching Powder—

Boston,	51 cks.	
Danzig,	60	
Hango,	87	
Lisau,	105	
Stettin,	165	

Caustic Soda—

Danzig,	138 dms.	
Hango,	125	
Lisau,	131	
Stettin,	131	

Chemicals (otherwise named)

Alexandria,	10 cks.	
Bremen,		
Copenhagen,	5	121 1/2
Christiania,		1 1/2
Danzig,		1 1/2
Dunkirk,	25	

Cottonseed Oil—		
Flushing,	198 c.	
Hamburg,	470	
Katmandu,	1,518	
Satin,	200	
Antwerp,	403	
Bombay,	400	

Creosote—		
Danzig,	54 cks.	
Hamburg,	37	

Dyestuffs (otherwise undescribed)		
Bremen,	2 cks.	
Boston,	4	
Drontheim,	1 bl.	
Rouen,	99	

Linseed Oil—		
Bergen,	58 c.	
Copenhagen,	59	
Drontheim,	130	
Hango,	227	
Rotterdam,	50	
Christiansund,	41	
Hamburg,	662	

Mineral White—		
Hamburg,	20 cks.	

Naphtha—		
Dunkirk,	52 cks.	

Ochre—		
Konigsberg,	10 cks.	

Painters' Colours—		
Antwerp,	15 drms. 4 cs. 70 cks.	
Amsterdam,	59 pks.	
Bergen,	4	1
Boston,	2 drms.	
Copenhagen,	10	17
Christiansund,	80 pkgs.	
Christiansia,	144	1 18
Christiansand,	44	
Danzig,	75	37
Dunkirk,	1	2
Drontheim,	27	7
Flushing,	100 drms.	3
Gothenburg,	100 drms.	3
Hango,	20 pkgs.	1
Hamburg,	40	18 11
Lian,		157
New York,	140	50
Rouen,		1
Rotterdam,	10 drms. 24	
Stettin,	100	176

Pitch—		
Antwerp,	577 tns.	
Dunkirk,	393	

Soap—		
Antwerp,	30 cs.	
Christiansia,	30	

Tallow—		
Rotterdam,	54 cks.	

Tar—		
Amsterdam,	40 cks.	
Antwerp,	1	
Copenhagen,	1	
Hamburg,	17	
Satin,	4	

Varnish—		
Amsterdam,	10 cks.	
Antwerp,	4	3 cs.
Copenhagen,		5
Gothenburg,	2	
Hamburg,		1

GLASGOW.

Week ending April 20th.

Ammonium Sulphate—		
Trinidad,	55 t. 19 c.	£620
Drontheim,	166 13	1,862
Valencia,	354 17½	3,994

Asbestos—		
New York,	2½ c.	£20

Bleaching Powder—		
Boulay,	2 t. 2½ c.	£23
New York,	9 12	72

Boracic Acid—		
Rouen,	6 t. 3½ c.	£278

Borax—		
Portland, Me.,	2 t. 8½ c.	£69

Candles—		
Cape Colony, 3,500 lbs.		£138
Malta,	5,504	109

Carbolic Acid—		
Philadelphia,	5 t. 15½ c.	£105

Caustic Soda—		
Dunedin,	2 t. 11 c.	£20
Calcutta,	41 37	246

Coal Products—		
Aniline Oil		
Rouen,	1 t. 5 c.	£80

Aniline Salt		
Rouen,	1 t. 6 c.	£65

Benzol		
Rotterdam,	30 puns.	£230

Creosote Oil		
New York,	20 t.	£63

Naphtha		
Rouen,	23 t. 1¼ c.	£300

Pitch		
Valencia,	58 t. 8 c.	£785
La Rochelle,	915 8	1,281
Malta,	5 16	22½
Hungary,	505 17	606

Tar		
New York,	64½ t.	£142
Philadelphia,	100 brls.	50

Colours—		
Antwerp,	12¼ c.	£98

Copper Sulphate—		
Rouen,	45 t. 10 c.	£732

Cressylic Acid—		
Hamburg,	50 brls.	

Dyestuffs—		
Aniline Dye		
Calcutta,	¾ c.	£20

Extracts		
New York,	75¼ c.	£120
Valencia,	6 t. 16¼	107
Portland, Me.,	2 6¼	72

Fustic Extract		
Portland, Me.,		£168

Dyestuffs (otherwise undescribed)		
Christiansia,	3 cks.	£12

Farina—		
Italy,	6 t. 10 c.	£89
Philadelphia,	1 10	21

Glucose—		
Cape Colony,	1 t. 13¼ c.	£21

Lead Acetate—		
Calcutta,	3 t.	£84

Linseed Oil—		
Shanghai,	3 t. 11 c.	£91
Dunedin,	10 10½	268
Malta,	1 2½	24¾
Bombay,	3 16¼	75
Colombo,	1 1	25
Madras,	3 1	56
Cape Colony,	3	83
Portland, Me.,	3 8¾	74

Litharge—		
Oporto,	2 t. 2 c.	£26

Magnesia—		
Valencia,	9 t. ¼ c.	£130

Magnesium Sulphate—		
Christiansia,	100 bgs.	£32

Manure—		
Valencia,	150 t.	£1,150

Nitric Acid—		
Madras,	15 c.	£21

Ochre—		
New York,	3 t. 15 c.	£28
Calcutta,	10 8½	80

Paint—		
Straits,	20 t. 12¼ c.	£225
Cape Colony,		46
Calcutta,	86	91

Painters' Colours—		
St. John's, Nfld.,	1 kg.	£117
Amsterdam,	1 t. 2½ c.	1½
Singapore,	1 t. 2½ c.	13
Hong Kong,	1 7½	26
Malta,		75
Cape Colony,		134
Rotterdam,	80 drums.	21¾
Dunedin,		567
Gibraltar,		85

Paraffin Wax—		
Rouen,	9 t. 14 c.	£289
Dunedin,	5 16	150
Hungary,	54 8	1,530
Antwerp,	11 6¼	395
Bombay,	15	23
Hamburg,	37 8	783
Valencia,	5 1½	132
Italy,	33 3¾	947

Potassium Bichromate—		
Barcelona,	16 t. 1¼ c.	£540
Rotterdam,	12 cks.	192
Japan,	5 t. 18¼ c.	238
Hungary,	9 18½	395
Philadelphia,	7 5	271
Italy,	19 12¾	805

Potassium Prussiate—		
New York,	9 t. ½ c.	£820

Potassium & Sodium Bichromate		
New York,	54 t. 8 c.	£1,821

Rosin Oil—		
Rotterdam,	10 brls.	£20

Saltpetre—		
Wellington,	1 t. 4¾ c.	£30

Soap—		
New York,	15 t. 1¾ c.	£244
St. John's, Nfld.,	1 13	33
Dunedin,	1	44

Soda Ash—		
New York,	25 t. 2 c.	£100
Antwerp,	5 2	28
Dunedin,	5 1½	29
Philadelphia,	50	200

Sodium Bicarbonate—		
Rouen,	5 t. 7 c.	£32

Sodium Bichromate—		
Rouen,	20 t. 18¼ c.	£640
Valencia,	2	140
Italy,	19 16¼	647

Sulphuric Acid—		
Colombo,	6 t. 18½ c.	£38
Madras,	18	238

White Lead—		
Cape Colony,	1 t. 19¼ c.	£40
Dunedin,		153

TYNE.

Week ending April 15th.

Alkali—		
Christiansia,	2 t. 3 c.	
Rotterdam,	5 14	

Ammonia Alkali—		
New York,	205 t. 9 c.	

Ammonium Sulphate—		
Hamburg,	10 t.	

Barium Binoxide—		
Dunkirk,	20 t.	

Barytes—		
Copenhagen,	5 t.	
New York,	45 9 c.	

Bleaching Powder—		
Christiansia,	15 t. 2 c.	
Hamburg,	55 11	
Antwerp,	97 13	
Brake,	2 15	
Rotterdam,	9 19	
New York,	248 10	
Aarhuus,	9 4	
Bergen,	5 1	
Drontheim,	10	
Copenhagen,	46 4	
Gothenburg,	5 4	
Genoa,	15 2	
Venice,	9 19	

Caustic Soda—		
Christiansia,	5 t. 4 c.	
Hamburg,	23	
Antwerp,	19 10	
New York,	133 14	
Barcelona,	9	
San Francisco,	72 10	
Genoa,	30 3	

Litharge—		
Hamburg,	2 t. 5 c.	
Drontheim,	6	
New York,	2 10	

Lump Alum—		
San Francisco,	20 t.	

Magnesia—		
Hamburg,		4 c.
Barcelona,	9 t.	
New York,	4 t. 13 c.	
Genoa,		12

Oxalic Acid—		
New York,	3 t. 9 c.	

Paint and Varnish—		
Bergen,	1 c.	

Phosphorus—		
Barcelona,	1 t. 12 c.	
Bergen,	1	

Pitch—		
Hamburg,	5 t. 5 c.	

Soda—		
Christiansia,	10 t. 2 c.	
Nakskov,	26 15	
New York,	54 1	
Genoa,	20 5	
San Francisco,	89 1	

Soda Ash—		
Antwerp,	10 t. 13 c.	
Gothenburg,	5 5	
San Francisco,	25 8	

Sodium Sulphate—		
Genoa,	10 t.	

PRICES CURRENT.

WEDNESDAY, APRIL 26th, 180

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B., at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids, 25 % and 40 %		£ s. d.	Lime, Acetate (brown)		£ s. d.
" Glacial		7/- & 11/-	" (grey)		6 0
Arsenic S.G., 2000°		50/-	Magnesium (ribbon and wire)		10 15
Fluoric		0 14 6	" Chloride (ex ship)		0 2
Muriatic (Tower Salts), 30° Tw.		per lb. 0 0 3 1/4	" Carbonate		per ton 2 7
" (Cylinder), 30° Tw.		0 0 10	" Hydrate		per cwt. 1 17
Nitric 80° Tw.		0 3 0	" Sulphate (Epsom Salts)		per ton 17 0
Nitrous		per lb. 0 0 1 3/4	Manganese, Sulphate		per ton 2 19
Oxalic		0 0 1 3/4	" Borate		17 15
Phosphoric, 1750°		nett 0 0 3	" Ore, 70 %		per cwt. 2 12
Picric		" 0 1 2 1/2	Methylated Spirit, 61° O.P.		per ton 4 5
Sulphuric (fuming 50 %)		" 0 1 0	Naphtha (Wood), Solvent		per gallon 0 2
" (monohydrate)		per ton 15 10 0	" Miscible, 60° O.P.		" 0 3
" (Pyrites, 168°)		" 5 10 0	Oils:—		" 0 4
" 150°		" 3 0 0	Cotton-seed		per ton 23 15
" (free from arsenic, 145°)		" 1 5 0	Linseed		" 21 0
Sulphurous (solution) S.G. 1025		" 1 6 0	Lubricating, Scotch, 890°—895°		" 7 5
Tannic (pure)		per lb. 3 0 0	Petroleum, Russian		per gallon 0 0
Tartaric		0 1 2	" American		" 0 0
Arsenic, white powdered		0 0 11 3/4	Potassium (metal)		per oz. 0 3
Alum (loose lump)		per ton 13 15 0	" Bichromate		nett per lb. 0 0
Alumina Sulphate (pure)		" 5 2 6	" Carbonate, 90% (ex ship)		per ton 17 0
Aluminoferrous		" 5 0 0	" Chloride		per lb. 0 0
Aluminium		" 2 10 0	" Cyanide, 98%		" 0 2
Ammonia, Anhydrous		per lb. 0 4 0	" Hydrate (Caustic Potash) 80/85 %		per ton 21 10
" 880°=28°		" 0 1 2	" (Caustic Potash) 75/80 %		" 20 10
" =24°		per lb. 0 0 2 1/2	" (Caustic Potash) 70/75 %		" 20 0
" Carbonate		nett 0 0 3 1/4	" Nitrate (refined)		per cwt. 1 2
" Muriate		per ton 20 0 0	" Permanganate		per cwt. 3 5
" (sal-ammoniac) 1st & 2nd		per cwt. 35/- & 33/-	" Prussiate Yellow		per lb. 0 0
" Nitrate		per ton 39 0 0	" Sulphate, 90 % (ex ship)		per ton 9 15
" Phosphate		per lb. 0 0 10 1/4	" Muriate, 80 % (do.)		" 8 0
" Sulphate (grey) London		per ton 12 7 6	Silver (metal)		per oz. 0 3
" (grey) Hull		" 12 5 0	" Nitrate		" 0 2 1
Aniline Oil (pure)		per lb. 0 0 6 3/4	Sodium (metal)		per lb. 0 3
Aniline Salt		" 0 0 6 1/4	" Carb. (refined Soda-ash) 48 %		nett per ton 6 0
Antimony		per ton 45 10 0	" (Caustic Soda-ash) 48 %		" 4 15
" (tartar emetic)		per lb. 0 1 0	" (Carb. Soda-ash) 48 %		" 4 17
" (golden sulphide)		" 0 0 10	" (Carb. Soda-ash) 58 %		" 5 2
Barium Chloride		per ton 7 10 0	" (Soda Crystals)		" 3 0
" Carbonate (native)		" 3 10 0	" Acetate (ex-ship)		" 16 15
" Sulphate (native levigated)		" 45/- to 75/-	" Arseniate, 45 %		" 11 15
Bleaching Powder, 35 %		nett 8 0 0	" Chlorate		per lb. 0 0
" Liquor, 7 %		" 3 10 0	" Borate (Borax)		net, per ton. 29 0 0
Bisulphide of Carbon		" 11 15 0	" Bichromate		per lb. 0 0
Chromium Acetate (crystal)		per lb. 0 0 6	" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton		11 0 0
Calcium Chloride		per ton 2 5 0	" (74 % Caustic Soda)		10 10 0
China Clay (at Runcorn) in bulk		" 17/6 to 35/-	" (70 % Caustic Soda)		9 10 0
Coal Tar Products and Dyes:—			" (60 % Caustic Soda)		8 10 0
Alizarine (artificial) 20 %		net per lb. 0 0 8	" (60 % Caustic Soda, cream) (f.o.b.)		8 5 0
Magenta		" 0 3 9	" Bicarbonate		per lb. 6 10 0
Anthracene, 30 % A, f.o.b. London		per unit per cwt. 0 1 2	" Hyposulphite		" 7 10 0
Berzol, 90 % nominal		per gallon 0 1 5	" Manganate, 30%		" 16 0 0
" 50/90		" 0 1 4	" Nitrate (95 % ex-ship Liverpool)		per cwt. 0 10 3
Carbolic Acid (crystallised 40°)		per lb. 0 0 7 1/2	" Nitrite, 98 %		per ton 27 10 0
" (crude 60°)		per gallon 0 2 6	" Phosphate		" 15 0 0
Creosote (ordinary)		" 0 0 1	" Prussiate		per lb. 0 0 7 1/4
" (filtered for Lucigen light)		" 0 0 1 1/4	" Silicate (glass)		per ton 5 7 6
Crude Naphtha 30 % @ 120° C.		" 0 0 10	" (liquid, 100° Tw.)		" 4 5 0
Grease Oils, 22° Tw.		per ton 2 5 0	" Stannate, 40 %		per cwt. 3 5 0
Pitch, f.o.b. Liverpool or Garston		" 1 5 0	" Sulphate (Salt-cake)		per ton. 1 5 0
Solvent Naphtha, 90 % at 160°		per gallon 0 1 1	" (Glauber's Salts)		" 1 10 0
" Lucigen " and " Wells " Oils		" 0 0 1 1/4	" Sulphide		" 8 10 0
Copper		per ton 44 7 6	" Sulphite		" 6 12 6
" Sulphate		" 16 5 0	Strontium Hydrate, 100%		" 8 10 0
" Oxide (copper scales)		" 42 0 0	Sulphocyanide Ammonium, 95 %		per lb. 0 0 7 1/4
Glycerine (crude)		" 13 0 0	" Barium, 95 %		" 0 0 5 1/2
" (distilled S.G. 1250°)		" 43 0 0	" Potassium		" 0 0 7 1/2
Iodine		nett, per oz. 0 0 9	Sulphur (Flowers)		per ton. 8 0 0
Iron Sulphate (copperas)		per ton 1 12 6	" (Roll Brimstone)		" 6 10 0
" Sulphide (antimony slag)		" 2 0 0	" Brimstone: Best Quality		" 4 2 6
Lead (sheet) for cash		" 11 0 0	Superphosphate of Lime (26 %)		" 2 7 6
" Litharge Flake (ex ship)		" 13 0 0	Tallow		" 32 0 0
" Acetate (white)		" 25 15 0	Tin (English Ingots)		" 96 0 0
" brown		" 17 10 0	" Crystals		per lb. 0 0 6 1/4
" Carbonate (white lead) pure		" 20 0 0	Zinc (Spelter)		per ton 18 2 6
" Nitrate		" 20 0 0	" Chloride (solution, 96° Tw.)		" 5 15 0

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SATURDAY, MAY 6, 1893.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

AFTER MANY DAYS.

THERE are some people who are slow at awakening, and when they do awake, invariably go full tilt at the nearest windmill or flock of sheep, in order to demonstrate their foresight or their prowess. This is such an established fact, that it needs no effort on our part to verify the proposition.

The Institute of Chemistry of Great Britain and Ireland has evidently come to the conclusion that it must do something for its Fellows, or, to say the least, this probably is the opinion of a majority of the Council, who administer the funds contributed by the Fellows. The complaints relative to the manner in which the examinations have in the past been conducted, are now bearing fruit, and the Fellows are to be congratulated upon the course they took at the Extraordinary General Meeting on the 27th ultimo, in voting £1,000. for an Institute Laboratory. We find the meeting was "extraordinary" in more senses than one, seeing that the above proposal emanated from a committee, whose report had never been before the Council for ratification. If this is the way business is done at the Institute, the sooner it is amended the better; one would have thought that a Council Meeting held an hour before the Extraordinary Meeting would have sufficed to set all in order.

The principal business of the evening, however, lay in the consideration of the report of censors on practices of an unprofessional character, the Council feeling the necessity for a more definite standard of conduct such as "is recognised in the professions of law and medicine." Without insisting upon the fact that the Council have been exceedingly unfortunate in its comparisons, we may venture to submit that there are far more practices decidedly unprofessional (nay, we will go further and say decidedly immoral and misleading) than are mentioned in the "five acts" of the Censors, but with which they have not ventured to deal. "Advertising for practice in newspapers, journals, magazines, or other published papers," is, in the opinion of 39 Fellows out of a total of nearly 800, "discreditable," and we suppose the Council will use the powers of their Charter, and deal with advertisers accordingly. We venture to think that before doing so, they will act more wisely. The President, in his opening remarks (see another column), was obliged to admit that there was nothing morally wrong in advertisements, and "he did not know that they were ethically wrong," and though we quite agree with him that it does not tend to raise the profession for Brown, Jones, or Robinson to advertise themselves "as prepared to do analyses at greatly reduced fees," yet the wholesale condemnation of advertising in any shape or form is decidedly unwise and short-sighted, and, in the end, injurious to the best interests of the Institute and the public.

With the last four "Acts" condemned by the censors we entirely agree, but they do not go far enough, and we cannot

think the President was in earnest when he measured the chemists' remuneration against the hire of a horse for an hour. A horse is generally supposed to be worth the power of eight men, and we suppose this has been taken into account, in the remuneration accepted by "top sawyers" for book writing and literary work of a chemical nature. We can quite understand the President's wrath at the druggist's way-to-the-back-stairs being designated a chemical laboratory, but as Mr. Carteighe, who moved the resolution, has some weight as a *pharmaceutical* chemist, we trust he will use his best endeavours in his own society to stop such nefarious practices. The case mentioned by the President as coming within his own knowledge is sufficiently caustic, but he might have added the name of the professor who accepted the samples and reported upon them.

In these matters of "professional practice" the public who pays the piper has a right to be considered, and we hold that the public is prejudiced to a very serious degree by the unyielding application of so-called professional etiquette. Law and Medicine are instanced as the guiding stars of the chemist. Will the consulting chemist be allowed to accept fees whether his work is done or not, to depute his work to juniors who "devil" for him, taking over their opinions and work at the eleventh hour as his own, or even to go before a judicial tribunal quite unready and unprepared, to wriggle along as best he may at his client's expense? Then again in medicine, it may be very well for the surgeon in ordinary to rate his services according to the rental of the house in which his patient lives, to hush up all cases of mal-treatment which come under his notice, to experiment with new drugs upon unsuspecting patients—but is it well for the patient? If it is not, we cannot see how ordinary ethics as we know them can be introduced into this discussion.

Is it, or is it not, "discreditable" for a professor to accept samples for analysis, and to sign the certificate of the same, when the whole of the work has been done by a more or less qualified assistant or premium pupil? And yet we do not find a case like this covered by the six "Acts" of the Censors. If the Censors of the Institute wish to purify their camp, they must not begin by stirring up the mud. Let them commence by a purgation of real faults. They are now straining at the gnat and swallowing the camel, and they will find before they have proceeded very far that they have been on the wrong tack. Analytical and consulting chemists are not on all fours with those engaged in law and medicine—and Heaven forbid they ever should be—and should the Censors attempt the impossible task of making them alike, they will most assuredly find they have undertaken the curious task of making a square peg fit a round hole. For the nonce let this suffice; we have not done with this subject by any means, but we prefer to reserve what more we have to say upon the matter till a more suitable occasion.

THE INSTITUTE OF CHEMISTRY.

AN extraordinary general meeting of the Fellows of the Institute of Chemistry of Great Britain and Ireland was held at 30, Bloomsbury-square, London, on Thursday, the 27th April. Dr. W. A. Tilden occupied the chair.

About 41 members present took part in the voting, and the president stated that 139 proxy forms had been sent in.

Mr. G. H. Robertson, the secretary, having read the notice convening the meeting,

The Chairman said it would be seen that the business they had to deal with was of a twofold character. The first part of it related to the erection of a laboratory in connection with the Institute, and he

had been under the impression until a few days ago that it was merely a formal matter. The second part of the business related to the report of the Censors, and dealt with questions about which there would be considerable discussion. Under the circumstances it would be as well that he should give a brief history of what had transpired with reference to the first part of the business on that day. They would remember that some time ago the Council had come to a conclusion that it would be desirable to acquire premises of their own and they had decided to acquire possession of the building in which they were assembled. The reason for taking over that house was that they thought it necessary to provide good accommodation, not only for offices but also a chemical laboratory, to enable them to carry out satisfactorily the very important work of examination. But there were no London laboratories available for that purpose, and it was decided to acquire that building it was intended to make alterations in the upper rooms for the purpose of converting it into a laboratory, but the agent of the Duke of Bedford had raised an objection to that course. The Council had thoroughly ventilated the matter, and had decided that the best plan would be to acquire a laboratory in the rear of the premises, about 35 feet square, by which accommodation could be provided for about 25 candidates at a time. It was apprehended that £1,000. would cover the cost of the building and fittings, apart from the chemical apparatus which would be required. They were committed to building a laboratory, and they would pay the builder's bill, whether it was done at once or postponed to an indefinite period.

Mr. W. Thompson (Manchester), in proposing "That the Council be empowered to expend a sum not exceeding £1,000. upon the purchase of a building to be used as a laboratory, upon the ground at the rear of the house at 30, Bloomsbury-square," said that money had been expended in obtaining the lease of that building, and any delay in proceeding with the erection of a laboratory would mean the loss of money, and prestige.

Mr. Michael Carteighe seconded the resolution with much enthusiasm. Mr. Groves moved as an amendment "That the Council be empowered to obtain estimates for the erection of a building to be used as a laboratory, upon the ground at the back of the house at 30, Bloomsbury Square."

Dr. Hehner seconded the amendment, which, after a long discussion, was put and negatived by a very large majority—16 to 25.

The mover and seconder of the original resolution having agreed to a slight alteration in its wording, it was put and carried.

The Chairman said the next business was of the very importance, and he wished to express his views on the matter in any way committing either the Committee or the Council. He had received many letters from Fellows of the Institute of Chemistry of what they considered unprofessional conduct on the part of the Fellows. Several of those communications appeared to him to be serious for him to deal with on his own responsibility, and he consulted his colleagues. The Censors had dealt with the matter at a meeting at which they were perfectly unanimous. Little in the way of professional practice from time to time arose, which appeared to be of a great extent, to the want of a definite guiding principle.

In many of those cases, if the offenders had been coming to the Institute, they would, in all probability, at once see that they were wrong, and discontinue the conduct complained of. Others were thought to be serious enough to call for stronger measures, but did not seem to be amongst them that amount of professional feeling which existed in other bodies. The result of the action of the Censors was that they drew up a sort of code of ethics which they thought might be put in the form of resolutions to be taken at a General Meeting, not with the object of any action being taken with regard to any individual, or any set of individuals, but merely that the Institute might have the opportunity of expressing its views and feelings. The report of the Censors recommended that two resolutions be submitted to them, the first of which was merely an expression of opinion which need not lead to any action.

The other resolution was one which would strengthen the Council in the event of any cases arising which called for action. They wanted, as a profession, to be treated when they went to a witness-box to give evidence with the same respect as members of other professions. It was important for them to consider whether such things would tend to raise the profession of consulting analytical chemists, rather than whether they were ethical or unethical. There was obviously nothing morally wrong in a chemist who was more or less a question of taste. Advertisements in the *Chemical Trade Journal* were morally wrong, and he did not know that they were ethical, but it certainly did not tend to raise their profession for him to see Mr. Robinson or Robinson to advertise himself as an analytical chemist "for doing analyses at greatly reduced fees." With regard to the second resolution, "undertaking through another person the performance of professional work at fees representing a fraction of the usual recognised scale of fees for analytical work,"

ing had been brought to his notice very forcibly in several he had in his hand the page of a journal in which it was that "Arrangements have been made with Mr. A. B. to and report upon samples of food, drink, or drugs," and do analyses of water and almost everything else for a fee of (later.) He did not think it could be for the good of the professionally if persons could get analyses made for a less they would have to pay for the hire of a horse for an hour.

) If that were so the profession was hardly worth following.

(.) The fourth clause referred to a very serious and import-

In a good many chemists' and druggists' shops they would ouncement that analyses were conducted, and he knew of where on a glass door at the back of the shop were the words al laboratory." The door led to the back stairs, and there oratory on the building at all. (Laughter.) If anyone took

f water for analysis it would be sent to Professor Somebody, furnish a report, which would be supplied by the druggist by himself. People who did that kind of thing were cutting

root of the profession. (Applause.) They could not gain

nce of the public, or secure adequate remuneration for their hey countenanced that mode of procedure. (Hear, hear.)

d to the fifth clause he had before him a certificate with well known cocoa (no doubt a good article) which contained

as to its physiological properties which could not properly

by the analytical chemists whose names were attached.

d be said if a medical man were to certify about a chemical He had been asked to testify to that very thing, but he

express an opinion upon a matter upon which he had no

(Applause.) The worst thing he had seen was an

nt issued in June last on the eve of the General Election, sed "To the Electors of Great Britain and Ireland," ending

mmendation of a certain non-alcoholic ale. That was signed y of that Institute, and he was bound to say that it was very

nal. (Hear, hear.)

ael Carteighe said he had great pleasure in moving the ecommended in the report of the Censors.

following acts or any of them shall be held to be "discredi- e profession of Analytical and Consulting Chemist," viz :—

vertising for practice in newspapers, journals, magazines or r published papers.

ding out by post or otherwise letters, circulars, or cards ing professional services.

ndertaking through another person or agency the perfor- e of professional work at fees representing only a small ion of the usual recognised scale of fees for analytical

plying to other persons, not being qualified chemists, ts upon samples or processes with the knowledge that these r persons will issue such reports as their own work.

ing or allowing to be issued certificates of purity or riority concerning advertised commodities, such certificates g either not based upon the results of an analysis, or con- ng exaggerated, irrelevant, or merely laudatory expressions, med to serve the purposes of a trade puff.

he unauthorised use of letters indicating University ees."

ot propose to make many remarks, but he would be content ad proposition that it was very desirable that the confidence

vidual member of the Institute be placed in the hands of the f the analytical and consulting chemist wished to consider

professional man he must not use the weapons of trade, or eans by which the ordinary advertising tradesman got his

either must he lend himself to trade puffing by signing cer- o things which were not within his province, and required l knowledge whatever. If the public got the idea that

nd consulting chemists could be brought to give certificates ng work, it would be a serious injury to the profession,

as Stevenson in seconding the resolution said he thought l come when they ought to adopt a new code. There

discreditable things being done in the chemical profession stitute would be failing in its duty if it did not try to put a

d said there were members of the profession willing to

ork at an abnormally low fee and without any retainer. society which had been able to obtain analyses of milk for

. 6d., and even 1s. 9d. (Laughter.) He regretted to say

the men who were prepared to do that occupied the position alysts. If a member of the public took a sample of milk to

uld have to pay under the Act, 10s. 6d., and yet they were o the work for a society for the ridiculous fee which he had

and without any retaining fee. (Shame.)

Allen said that his name appeared in the advertisement een referred to, but he begged emphatically to disclaim

having vouched for the whole of what was there stated. He had made an analysis and reported on the article as a chemist. The advertisers had mixed up his report with that of the medical men, but he was not to blame for that.

After some further discussion the resolution was put and carried with two dissentients.

On the motion of Mr. Friswell, seconded by Mr. Cassal, the consideration of the second resolution, "that in the opinion of this meeting the Council will be justified in regarding these acts as offences of the kind referred to in the Charter (chapter 16, 3), as discreditable to the profession of Analytical and Consulting Chemists," was postponed to a future meeting to be convened by the Council.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending April 8, 1893, was not very good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed three deficiencies in illuminating power, two against the South Metropolitan Gas Co. and one against the Gas-Light and Coke Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test :—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'32	10'94*	0'22*	Nil.
South Metropolitan Gas Co.	6	16'26	9'61	0'48	Nil.
Commercial Gas Co. ..	2	16'25	8'45	0'05	Nil.

* 13 Stations only tested.

The supply during the week ending April 15, 1893, was very good, being without a single instance of deficient illuminating power. The results calculated as above were :—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'35	10'65	0'29	Nil.
South Metropolitan Gas Co.	6	16'31	9'85	0'46	Nil.
Commercial Gas Co. ..	2	16'4	9'20	0'05	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the proportion of total sulphur contained in the Leeds gas during the month ended April 13, 1893, has averaged 14'41 grains per 100 cubic feet. The following are the results of tests made at the works in grains per 100 cubic feet.

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	April, 1893.	Mar. 1893.			Weight.	Volume.
Meadow Lane....	15. 24. 29.	7. 13.	13'18	0'23	48'90	0'06
New Wortley	16. 23. 27.	8. 12.	14'96	0'82	73'35	0'09
York Street	17. 22. 28.	5. 13.	15'14	0'33	48'90	0'06
Average at Works ..	..	..	14'41	0'53	57'05	0'07
Average at East Parade	..	..	13'09	0'98	48'90	0'06

During the month the average illuminating power of the Leeds gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour) :—Standard argand, 24 holes, 18'3; standard batwing, 19'1; Sugg's illuminating power meter, 18'3.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held at the offices, Mosley-street, Manchester, on Monday, May 1st, at 2.30 p.m. Mr. T. W. Killick was in the chair.

The first business was the reading of the report presented by the Chief Inspector, Mr. R. A. Tatton, which was as follows:—

The extension of time granted to the authorities having expired in the cases of Chadderton, Denton and Haughton, Marple, Wilmslow, Middleton, Stalybridge, and Dukinfield, it would be for the Committee to consider whether a further extension should be granted.

Middleton Corporation.—Population, 22,152; ratable value, £62,056. The application for borrowing powers is to be forwarded to the Local Government Board on the 3rd of May. The Corporation have not succeeded in buying the land required, and application will therefore have to be made in the next session for a provisional order for compulsory purchase. This will postpone the construction of the outfall works till next year, but there is no reason why the sewers should not be made, and I would suggest that the Corporation be requested to give an undertaking that this part of the work shall be commenced within two months.

Chadderton Local Board.—Population, 22,087; ratable value, £84,521. 5s. One of the main intercepting sewers is in course of construction, and a contract for a further length will shortly be let.

Denton and Haughton Local Board.—Population, 14,000; ratable value, £47,263. Arrangements have been made for the purchase of land, and instructions have been given to an engineer to prepare plans for the Local Government Board.

Marple Local Board.—Population, 4,800; ratable value, £24,970. Plans for the intended sewage works have been submitted to the Local Government Board.

Wilmslow Local Board.—Population, 6,300; ratable value, £28,886. Three months' extension of time was granted to this authority in February last to enable them to purchase the necessary land for their sewage works. They have not yet succeeded in getting the land, and there seems little prospect of their being able to do so without compulsory powers, which means practically twelve months' delay. A letter from the clerk on the subject was laid before the Sub-committee. In this case, as in that of Middleton, the sewers might be constructed.

Bacup, Whitworth, and Ramsbottom.—These cases will have to be postponed to the next meeting, as the extension of time granted to them has not yet expired.

THE SHIP CANAL.

In accordance with the instructions of the Sub-committee, I beg to report that I have inspected the Ship Canal, with a view of verifying the complaints which have been made as to the condition of the water. I can fully endorse what was said at your last meeting. The water at the present time is very foul, and the stench from it is abominable. When the canal is filled, and the rate of flow is consequently reduced, the condition of things will be very bad, and local authorities with schemes of sewage disposal on hand should use their utmost endeavours to get their works in operation by the summer of 1894. By that time the bulk of the Manchester sewage will be treated, and the Salford effluent will, we hope, be improved; but there will still be considerable pollution from towns higher up the rivers, whose schemes are only now before the Local Government Board. Good progress has been made by most of these towns since your Committee took action, but the actual improvement is necessarily slow, as land has to be purchased, sometimes only by compulsory powers, and the schemes submitted to and approved by the Local Government Board before the work of construction is commenced.

The report was passed.

Mr. Noton said that, as in the instance of this particular report, which contained some important information about the Ship Canal, the reports frequently contained matter which was of such importance as to merit the attention of the members of the Committee before the meeting. He therefore moved a resolution to the effect that in future the reports of the Sub-committees and Chief Inspector be printed and sent to the members of the Committee before the meeting. After some discussion the motion was put and carried, an exception being made in the case of the Finance Committee.

The report of the Consultative Sub-committee was then taken. In regard to Wilmslow, since, despite various extensions of time, no land had been purchased or scheme laid before the Local Government Board, and further, seeing that Mr. Tatton had presented an unsatisfactory report upon the drainage arrangements of several new houses, the sewage of which was collected in cesspools which discharge into the Bollen, it was decided to take proceedings, so that the matter might be settled by an order in court.

As it was understood that Middleton would have a scheme before the Local Government Board shortly, an extension of one month was granted, while on the recommendation of the Sub-committee, Chadderton, Denton and Haughton, and Marple, were granted three months each.

The bills of Stalybridge, Dukinfield and Ashton having been the Police and Sanitary Parliamentary Committee, the (Mr. Hulton) reported that the Chairman of the Committee stated that his Committee were strongly of the opinion a joint scheme was greatly preferable to three separate ones to local authorities. The Consultative Sub-committee taking into consideration the configuration of the district, and the advantage sewage farm against three, were also of the same opinion recommended that no proceedings should be taken in these seven months to enable the authorities to prepare a joint scheme. The report was adopted and an extension of one month granted to Dukinfield and Stalybridge. In answer to Alderman Noton Chief Inspector said he had inspected all the docks of the Ship at Salford and they were all equally bad, the main stream between the docks was also very bad.

Mr. Bentley (Bury) asked whether, seeing that it had been that the most efficient way of disposing of sewage sludge was to out to sea, it would be within the province of Sir Henry Roscoe to advise Bury and other sanitary authorities that that was the most economical way of disposing of their sewage sludge.

The Chairman said he was afraid that was hardly within the province. This question only came up because this water was in a bad state.

Mr. V. K. Armitage: I am very glad to hear that Bury is the importance of dealing with its sewage in some way or (Laughter.)

Mr. Bentley: We have never been asleep on the subject.

Dr. Hewitt said it was quite open to Bury or any other authority to consult Sir Henry Roscoe. In the course of further discussion, he it was stated that doubtless Sir H. E. Roscoe would make a case such a consultation, he being only retained to advise the Joint Committee.

Mr. Groves drew attention to the state of the Irk and Mersey and stated that from statistics it appeared that the Irk contained and the Medlock some seven times as much solid matter as the Mersey.

Mr. Hewitt very much doubted if this was so, as the figures to Mr. Groves referred merely expressed parts per 100,000; now necessary before making any comparison to multiply the solids total volume of water which passed down the river; and although figures for the Irk and Medlock were high, the flow was much less than that of the Irwell. It did not follow, therefore, that the total amount of sewage coming down the Irwell was not greater than that coming down the other streams.

The Chairman said Mr. Tatton's attention had been directed to the Medlock, and he would also like to mention that the Consultative Committee had had before them the condition of the Salford effluent and had the data been complete they would probably have had something to say to the Committee that day as to the condition of the effluent.

Mr. Armitage called attention to what was described in the press as the "Deadlock at Macclesfield." It appeared that authority, which had been granted extension of time to complete purchase of land, now found that the very same land had been granted by Parliament to a railway company. It was hardly conceivable the authority did not know that this was likely to happen when applied for an extension of time.

The Chairman said that he was afraid nothing could be done till the expiration of the three months which had been granted, even though the case was an aggravated one.

The Chemical Sub-committee reported that they had held a meeting to discuss with tanners and fellmongers on the watershed the means of dealing with noxious effluents, and the manufacturers expressed their willingness to meet the Committee and to get permission to turn their effluents into the sewers of local authorities, or to plant to deal with them independently. Notice was given for the next meeting of

DYERS AND CALICO PRINTERS,

convened for Monday, May 8th, at the Town Hall, to discuss questions with the representatives of these industries. After acknowledging the receipt of a paper from Lord Rosebury on the subject adopted in Russia for preventing the pollution of rivers and the action of the usual formal business of passing the finance and treasurer's report, &c., the meeting terminated.

EXPLOSION OF AN "ECONOMISER."—A serious explosion took place at White Cross Mills, Lancaster, last week. The economy pipes connected with the steam boilers burst from some unexpected cause, wrecking the boiler house completely and blowing out the windows of the mills near. The workmen employed on the night fortunately escaped without injury. The mills were entirely destroyed through the explosion.

Our Book Shelf.

CALVERT'S MECHANICS' ALMANACK, 1893. By W. Calvert. Manchester: John Calvert, 1893.

This little almanack, which has been published now for 20 years is as useful and as attractive as ever. It contains the usual tables, receipts, and general hints. Mention is made of the new process for coating iron with lead, and also a simple process for coating metals with magnetic oxide of iron. It would be evidently mistaking the object of the book to look upon it as a mechanical almanack, as it contains a lot of heterogeneous information which is of anything but a mechanical nature. The most useful items of a technical order are to be found in the information relating to pumping machinery, and some popular delusions about patents. There are several small omissions which present themselves, but taken on the whole it answers its purpose, for those among whom it is primarily intended to circulate and assist.

POPULAR DIGEST OF THE INCOME TAX. By J. Affleck, jr. Third Edition, 64 pp., with index. Manchester: The Income Tax Agency, 1892.

There are not many people who properly understand the Income Tax Act and its application, and the object of this highly useful little brochure is to enable men in the professional and commercial world to make a correct return of their income, so as to comply with the requirements of the law and yet not pay more than they need do. The book contains numbers of statements of accounts for returns, and appeals; also particulars about the repayment of duties. The third edition has been re-arranged and amplified by several additions. There is a complete index provided, so there is no difficulty in finding any particular subject to which it is desired to refer. The several cases where the preparation of the return of incomes is likely to be involved, or where the assessment is likely to be excessive, are dealt with separately. The book bristles with useful items of information and it is not too much to say that there are very few people, perhaps not one in a hundred, who would not pick up one or two eye-openers by a perusal of this commendable little book.

AIDS TO EXPERIMENTAL SCIENCE. By Andrew Gray. 99 pp.; Illustrated. Auckland, New Zealand: Upton and Co. 1892.

This book is designed to prepare students for examination by the New Zealand Education Department, and contains a smattering of science in general. Experiments are described to illustrate elementary laws all through the book, which is practically a collection of experiments with brief instructions for the guidance of elementary teachers. It deals with matter and the law of gravitation, sound, light, and heat, electricity and magnetism, chemistry, and the same in relation to physiology and health. There is also an appendix dealing with agricultural science. There is an extensive table of errata for so small and simple a work, which covers the majority of minor errors which occur. If there is a fault to be found with the book it is that it is too elementary. It would be hypercritical to mention all the little discrepancies in such a book, but it is a pity that even the most elementary information should not be in accordance with modern theories and nomenclature. An excellent idea of the scope of the book is given by a perusal of the examination papers at the end. One of the best features about the book is the section on manipulation, which is full of useful hints and pithy precautions.

DICTIONARY OF APPLIED CHEMISTRY. By T. E. Thorpe, D.Sc., F.R.S. Vol. III., O to Z. London: Longmans, Green and Co. 1,058 pp. 63s.

This is the completing volume of the "Dictionary," and is not the least interesting of the series, as amongst its contents may be found articles by well-known experts on oils, oxygen, paraffin, petroleum, phosphorus, potassium and sodium salts, silver, starch, sugar, sulphur, vegeto-alkaloids, and water. The method adopted in this work of deputing a subject to a master of the art is to be strongly commended, and has increased its value as a work of reference. In particular we would refer to three articles, which stand out from the rest as patterns to the literary chemist. The first is that on "Oils, Fixed and Fats," which demonstrates clearly the thorough acquaintance of the author with the subject; and he has, moreover, put the details of our present knowledge in such a form as to be readily available to anyone requiring such a reference.

The article on "Petroleum" is a most valuable compilation, not only for the statistics of manufacture, but as a guide to the determination of flashing point by the various pieces of apparatus adopted in different countries. This portion of the article is well illustrated, and shows at a glance the amount of ingenuity that has been spent over this vexed question.

The third illustration we have selected to exhibit the care with which the authors have prepared their articles for the press is that of "sandwich men," which the interested reader will find very complete. Still we refrain from referring to one point—the published analysis of ash. The author of this article has on more than one occasion expressed opinions in the same manner as he has done in a paragraph on page 466 of the work before us, and hereupon we join issue with him. Good analytical methods have for many years past been known to those whose special work lay in this direction, and it is rather too much of a joke to expect specialists to walk round with "sandwich men," with all their analytical methods posted on their backs; and, if they do not, to calmly assume that such methods do not exist. If the author intended to be so scrupulously exact, he should have selected for one of his illustrative analyses some substance other than that in which calcium sulphite finds a place, and in which the *marine* is determined to the second place of decimals.

A lengthy chapter of this article is devoted to the recovery of soda from vat or soda waste; but, from the reports of the Chief Inspector of Alkali Works, it is quite evident that the writer of the article is out of touch with the practice of to-day.

As we have already remarked, the idea of deputing specialists to write upon subjects with which they are perfectly familiar is a good one; and, even if their names appear a little too often in the articles as referees, we are all of us ever ready to recognise the modesty of the chemical discoverer, be he manufacturing, practical, or literary, and of his great disinclination to pose as "Sir O." The Dictionary of Applied Chemistry is a work which must sooner or later find its way into the library of every laboratory and educational institution; and the sooner the better, as applied chemistry is a progressive science, and no one can tell what we may be doing in this direction even in such a short period as ten years hence.

AGRICULTURAL CHEMISTRY. By Alfred Sibson. (Revised Edition.) 340 pp. Illustrated. Index. London: G. Routledge and Sons, Limited. 1892.

The task of writing a popular science book with anything like accuracy is a difficult one, and the present work is embarrassing for the reviewer, since it is hard to know in what way the book is meant to be used. Though published as one of the Popular Science Library, and though the chapter on the atmosphere is evidently written in accordance with the assumption that the reader is very slightly, if at all, acquainted with chemistry; yet, farther on, analyses occur of which the explanations are given, being consequently beyond the grasp of those who need such fanciful similes as are given in the earlier part of the book to assist their perception. Following the chapter on the atmosphere are two chapters on "Soils" and "Water," concerning which there is no need to say much, as they are on the whole satisfactory in regard to general information. The chemistry is "popular" in places, for we learn that silica is also called silicic acid, while under "Water" it is rather discursive in a work on agriculture to go into the expansive force of steam and illustrate the principle the same with diagrams of engine cylinders. In due course come chapters on the chemistry of the plant, vegetable produce of the soil, and animal produce of the same. Though, so far, the work is described as being decidedly mediocre, the ablest portions are those dealing with the chemical means of improving land by the use of natural and artificial manures. Of the latter, all the more important ones are mentioned, and the remarks on the adulteration of manures will be useful to those who do not know much about chemical analysis. Reference is made at some length to Mr. Channing's Bill for the prevention of the adulteration of manures and feeding stuffs, but the remarks are more in accordance with views that may have been held in 1867, rather than those of to-day. Viewed in its entirety, the work, unfortunately, cannot be considered very satisfactory. As a whole, it is in a very moderate degree successful, while the numerous errors of commission and omission render it incompetent to place amongst works which are of a higher class from an exact standpoint, being, in fact, neither fish, flesh, or fowl, nor yet herring.

THE PAPER TRADE DIRECTORY OF GREAT BRITAIN AND IRELAND. Edited by "The Doctor." 87 pp. London: 1893.

This handy little directory is one of the most useful and most complete directories for the paper trade in existence. In addition to the mills in England and Wales, Ireland and Scotland, it contains a list of the pulp mills in England and Scotland. The mills in England are subdivided into three classes, viz., hand made mills, machine made, and board mills.

An important feature in this directory is the inclusion of an account of the chief centres of the paper-making industry, the firms having London offices, and also of the offices of paper in the Metropolis is given. In describing the manufacturing districts, such as Kent, Lancashire, &c., information is given showing

way of reaching the various towns and the mills in the vicinity. In large towns the hotel or hotels used by the trade are mentioned. The suggestions for seeing the chief paper mills of Scotland are rather fuller than those given for England, owing to the lack of facilities for getting about, and will be found to contain many valuable hints to travellers, as well as to those who may have occasion to visit certain districts now and then on business.

INGENIEUR KALENDER, 1893. By T. Beckert and A. Polster.
Parts I and II. Berlin: Julius Springer, 1893.

This handbook for engineers, more particularly connected with the gas, water, and chemical industries, is published in two parts. Part I is got up very neatly in a strong leather wallet, on the edge of which a centimetre scale is impressed. The first part contains a table of logarithms and general mathematical tables, tables showing amount of air and oxygen required for combustion, &c. Information concerning boilers, turbines, air and gas engines is given under the various headings, while details in connection with the erection of iron and steel furnaces, gas plant, and electric lighting installations, are also afforded. A diary, some sheets of scribbling paper which can be replenished, ruled pages for rough sketches and diagrams, and a map of Germany are appended. Part II deals more fully with machine construction, tools, construction of steam engines and testing same, testing materials for constructing boilers and testing the boilers themselves, the construction and working of coke ovens, rollings, mills, and such like. The second part will, if anything, be found to be of greater use to engineers in this country than the first part, though we have no hesitation whatever in recommending the first part by itself to the notice of those connected with technological engineering.

THE CHEMICAL MANUFACTURERS' DIRECTORY. 94 pp. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 1893.

This is about the only directory which is devoted to the chemical trade pure and simple. It contains a list of most of the makers of chemicals and manures in England and Scotland, and a selection of Irish firms. The directory is about the most complete of any we have seen dealing with chemical manufacturers, and several of the changes which have occurred are duly recorded, though there are one or two striking omissions. In addition to the foregoing compilations, there is a list of brokers and agents in London, and also a classified list of the chief chemicals, giving the names of the makers of each in the United Kingdom. This portion of the directory renders it of considerable service to agents and dealers in chemicals.

THE ECONOMICAL PRODUCTION OF SULPHURIC ACID.

By E. J. BARBIER.

SULPHURIC acid is an article of paramount importance to so many industries that the list of those which could not do without it would be a very long one. Generally the installation of a vitriol plant is a necessity wherever it is intended to establish new industries, but unfortunately the task is often a very difficult one on account of the complex and costly nature of the apparatus required, more especially the leaden chambers, which are held to be indispensable.

Monsieur Barbier, who is well known in France for the number of patents he has taken out for the improvement of chemical plant and apparatus, has recently patented a simple and cheap apparatus for the manufacture of vitriol in either small or large quantities, of which the following is a brief description. It consists of a furnace for burning either sulphur or pyrites, which supplies sulphur dioxide to some two, three or four cylinders of small dimensions, packed in a similar manner to a Glover's tower and placed above a series of shallow pans arranged in a cascade, each being heated by a separate flue, and acting the part of a Gay Lussac tower. In the higher pans nitrous sulphuric acid is placed, which gives off its nitrous fumes into the cylinders. The cylinders then also receive sulphur dioxide, nitric acid, air and steam, all the gases mixing in the crevices formed by the packing in the tower, which thoroughly agitates the gases, causing them to intermingle in a manner favourable to the formation of sulphuric acid.

The acid which is thus formed is drawn off in portions into concentrating pans, where it is finally obtained in a concentrated form, freed from nitrous vapours.

An apparatus such as we have just described has been working for three months in the chemical works of M. Barbier, in Italy. The product he is getting is exactly the same as that obtained by leaden chambers. He is obtaining 1,650 kilograms of acid per day, which is equal to a capacity of 50 kilograms of acid per cubic metre of cylinder space, while leaden chambers only yield 3 kilograms per cubic metre. Other plants are being installed to produce 5,000 kilograms per day.

An apparatus so simple and inexpensive, at the same time occupying such a small space, will truly be of great utility to those who wish to make sulphuric acid in places where it is wanted, but where the freight by land and water is so great as to make the price too high to allow of its being imported. The fact that a small vitriol plant can be put down at a small cost will be of signal importance to the mineral phosphate industries of France and elsewhere, for it will enable the poor deposits, which could not, on account of their low quality, be transported at a profit for treatment at chemical works, to be treated on the spot. It should also prove of considerable use to places in remote districts, where it is almost impossible to erect an ordinary plant, owing to the difficulties of obtaining materials and skilled labour.

Parliamentary Jottings.

THE EMPLOYERS' LIABILITY BILL.

On the motion to commit the Employers' Liability Bill to the Standing Committee on Law coming before the House of Commons on Tuesday last,

Mr. A. J. Balfour said he understood certain gentlemen desired to put before the Government the advantage of sending the bill to a Select Committee before which evidence could be taken on questions connected with the bill, on which a Standing Committee which had got into the habit of working on party lines would be unable to form an opinion that would command general assent.

Sir F. S. Powell objected to the bill being dealt with in the comparative secrecy of a Grand Committee.

While the hon. member was speaking,

Mr. Beith moved that the question be put.

The Speaker thought the motion should come from a member of the Government.

Mr. Asquith thereupon moved the closure, to which the Speaker assented amid cheers.

A few hon. members, prominent among them being Mr. Collings, at first objected to the closure, but did not go to the length of challenging a division. The debate being closed,

The motion to refer the bill to the Standing Committee was agreed to.

In reply to Mr. Tomlinson,

The Speaker ruled that the instructions of which notice had been given were out of order.

On the motion for the adjournment of the House,

Sir T. Lea complained that by the action of the Government on the Employers' Liability Bill several hon. members had been precluded from moving amendments.

The Speaker reminded the hon. member that the closure had been unanimously accepted by the House.

In reply to a question,

Mr. Asquith stated that the promise given by the Prime Minister at question time was that the bill would be taken on Thursday if it was not reached to-night.

Mr. T. W. Russell complained that the Government had been guilty of a piece of sharp practice, the understanding having been that the bill would not be taken to-night.—("No.")

The Speaker told the hon. member that the expression "sharp practice" was distinctly out of order. The House had taken the matter into its own hands, and the subject ought to drop.

THE CHEMISTS' AND BREWERS' EXHIBITIONS.—Apropos of the Chicago Exhibition there seems to have been a tendency to exhibitions of a local nature. During last week two small exhibitions were running, one in London and the other in Manchester. The Chemists' and Druggists' Exhibition which was held in the Metropolis, was devoted chiefly to pharmaceutical products, photographic chemicals, etc. Among the various exhibits of more particular interest to the chemical trade we notice those of Messrs. Cook and Co. of the East London Soap Works, Jeye's Sanitary Compounds Co., the Sanitas Co., Limited, the Berkefeld Filter Co., the United Alkali Co., and Thomas Tyrer and Sons. The Brewers' Exhibition was not so closely related to brewing as to appliances for selling beer, such as beer pumps, check tills, etc. There was a demonstration of the process of "fining." There were several exhibits, though of more interest to chemists we should fancy than to brewers, such as the exhibit of Jeye's Sanitary Compounds, the incandescent Gas Light Co., Mansfield's Oil Gas Apparatus and Halliday's Self-cleansing Filters.

Correspondence.

*. * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

T.T.—Many thanks for your communication.

W.G.C.—It has been inserted. We will make the necessary alteration in the address.

J.M.—Yours of 1st inst. duly to hand, and we beg to acknowledge contents.

F.N.—It will be sent on in the course of a day or so.

W.O.—It is the best and easiest way of obtaining them, and quite as expeditious as a personal application.

F.C.—Declined, with thanks.

G.J.—The date is not fixed yet, but some of the arrangements are to be found in our columns this week.

C.F.—Yes. No, it is verbatim.

QUERIES.

I.

I am told that there is a class of bricks made containing about 15% of magnesia besides silica and alumina; can you give me any information as to their manufacture or use, or inform me, through your journal or otherwise, where I could obtain such information? W. G. C.

II.

Can you suggest a method for the estimation of moisture (water) in samples of copper sulphate? I do not mean water of crystallization or combination, but water such as may be left on the crystal after leaving its mother liquor and well draining. A. J.

III.

(a) Are stoneware (Doulton's) worms very suitable for condensing wood naphtha connected to a steam jacketed still, or are they liable to go to pieces suddenly? (b) Does miscible wood naphtha 61° O.P. give off inflammable vapour at less than 73° F? W. H. M.

[Replies to the above should be addressed to the various correspondents c/o the Editor C.T.J.]

Trade Notes.

SOCIETY OF CHEMICAL INDUSTRY: LONDON SECTION.—The annual general meeting of the Society of Chemical Industry will be held this year at Liverpool. The 1894 meeting will be held at Edinburgh. Mr. E. C. C. Stanford have been nominated for president in 1894. The following gentlemen have been likewise nominated for election in July next as vice-presidents:—Messrs. Evans, Abel, Brunner, Horace Brown, and Burton, in the place of Sir Lowthian Bell, Messrs. Stevenson, Howard, and Newlands. Mr. Henderson, of Glasgow, has been nominated as an ordinary member of the council, in the place of Mr. Stanford.

ACCIDENT AT WIDNES.—At the Widnes Police Court, on Friday, last week, an inquest was held on the body of Thomas Walsh, aged 14, a plumber's blower in the employ of the United Alkali Company, at Mathieson's Chemical Works, Widnes, who met with his death on the previous Tuesday evening. It appeared that on the afternoon of the day in question, the deceased was in charge of a bellows connected by a tube to the "machine" being used by the lead burners below. He was on the top of No. 4 vitriol chamber. Owing to some unexplained reason, and in the face of strict orders to the contrary, the deceased climbed over the tunnel on the top of the chamber to the other side. He was in the act of lowering his bellows to the other side of the tunnel, when he overbalanced himself and fell onto the roof of the saltcake shed below, a distance of 26 feet. The injuries sustained by the lad were of so serious a nature that he died shortly afterwards. The jury returned a verdict of "accidental death."

Re MESSRS. SAUNDERS AND SAUNDERS.—An application was made at the Bradford County Court on Tuesday last, before His Honour, Judge Gates by Mr. Tetley on behalf of Mr. James Reckitts of Swanlan Manor, Hull, for an order instructing Mr. W. H. Armitage, of Huddersfield, the trustee under the above bankruptcy to accept a proof for £743, the amount of money lent and interest thereon. It appeared that in December, 1882, Mr. Reckitts lent the debtors £500, and they gave a promissory note for that amount. Mr. Reckitts now sought to prove for that amount and 9½ years interest, making the total amount £743. His Honour, in giving judgment, said the creditor, to get over the difficulty that the debt was statute barred, produced a document signed by Mr. Ashby Saunders, who was a partner of the firm, who had borrowed £1,500, on his own account.

In this document he promised to pay interest on the loan of £1,500 from July 1st, 1886, to January 1st, 1888, viz., £150, at the opportunity, "and which is acknowledged to be due to Reckitts." There was no evidence to show that the person signed the document had ever been able to pay, and as it had been signed by him on behalf of the firm he could not see how that debt could keep the debt alive, therefore the motion would be dismissed.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The benzol market is exceedingly flat, and the same prices are quoted as named last week, though perhaps 50/90's are a shade anything. Anthracene remains as already quoted, though in quarters higher prices are mentioned, but it is extremely doubtful whether they are the result of genuine business. Pitch remains stated in our last report.

The sulphate of ammonia market is very irregular and the differences of 5s. to 10s. per ton in the quotations from various sources. As near as can be stated, the spot values for Liverpool are £11. 6d. to £12., and for all May delivery is quoted at £11. 15s. It is £12, while London, Hull and Leith may be quoted £11. 15s. for all the month £11. 12s. 6d. There is still a fair demand all round and the market seems needlessly depressed.

MISCELLANEOUS CHEMICAL MARKETS.

There are no changes of any importance to record in any staple products of the alkali trade. Business in bleaching continues brisk for export, and there is also a better demand in the home trade; price remains at £8. nett, f.o.r. makers' works, and net f.o.b. Liverpool and Tyne, in hardwood casks. For soda all grades business is somewhat dull and prices rather in buyers' current quotations are for ammonia alkali 58%, 1½d., and ash 1½d. to 1¾d. per degree. In soda crystals there is no change; Caustic soda is unchanged for spot delivery, but prices are a trifle forward; current prices are f.o.b. Tyne, 77%, £11; f.o.b. 1½d. 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream 60%, 10 ton lots and upwards. Chlorate of potash still offered by makers at 8½d., and chlorate of soda at 9½d. to 10d., the latter, however, extremely scarce. For sulphate of copper the demand is good, there is no quotable change in price. Recovered sulphur remains at £4. 2s. 6d. f.o.r. makers' works. The decline in nitrate continues. Acetates of lime, brown and grey, are steady in price, there is general feeling that price has touched the bottom. Acetate of soda has been rather more freely offered, and there has been a decline in price during the week. Carbolic acid crystals are in position, demand being still slack and price maintained firmly for 39/40°. Other grades of carbolic acid continue in good demand and at full prices. White powdered arsenic still extremely scarce, quotations range from £13. 15s. to £14. at Garston. In caustic, and carbonate, the trade is dull, but prices are without alteration. Prussiate of potash 9½d. Tartaric acid 11½d. acid still offers at 3d., with varying discounts. Generally, the market continues dull.

LIVERPOOL OIL AND COLOUR MARKET.

WIDNES OILS.—Palm oil is firmer in tone, and there has been a business passing during the week for Lagos at £24. 10s. demand is quieter to-day. Olive is firm. There is no change in prices which remain £33. 10s. to £43. per tun. The enquiry though improved is small. Linseed is in poor demand but is being held at 20s. 3d. to 21s. 6d. per cwt. in export casks, for 14 makes. Rape is steady, refined Stettin has advanced to 29s. 4d. is quiet therewith. It is difficult to quote English owing to the supplies. Cottonseed is firm generally and prices have advanced. Liverpool refined being quoted 22s. 6d. to 24s. per cwt. The market is rather quieter to-day. Castor oil has been fairly steady all round though quiet. Good seconds Calcutta is selling at 23½d. per cwt. store; first pressure French is steadily held at 23½d. per cwt. is in better demand and is firm generally. North American

to 27s. per cwt., according to quality. Resin, common, is still 3s. 10½d. 1901, 3s. 9d. to arrive quoted. There is a fairly good spot business doing. Spirits of turpentine though still at 24s. per cwt. are firm, being steadily held at that price. Petroleum is in poor demand without alteration in prices.

REPORT ON MANURE MATERIAL.

There continues to be a good demand for material for immediate delivery, and buyers are beginning to turn their attention to forward business.

There are sellers of 75/80% Florida phosphate rock at 8¼d. in cargoes c.i.f. to United Kingdom, 1893 shipment, but further ahead more money is asked. The nominal values of Peace River rock and South Carolina hot air dried river rock are 7d. and 6½d. per unit respectively, but these prices are probably something above actual values.

There is more demand for cargoes of River Plate bones, and £4 3s. 9d. has been paid to good United Kingdom ports, £4 5s. now asked for anything of handy size afloat, and it is not certain that this price would do for summer shipment. The stock of foreign bone in the country is reduced to unusually narrow compass, and since prices current throughout the past year or two can offer very little inducement to shippers it seems pretty certain that a higher range of prices must be looked for next season. For crushed bones, on spot, £4 10s. now required, and for parcels shortly due £4 5s. ex quay Liverpool. Bombay bone meal is very scarce, and there is now nothing to be had under £4 17s. 6d., and £5. ex store Liverpool. Common grinding bones would fetch quite £4 per ton, probably over that.

Owing to arrivals the nitrate of soda market is easier. From store, immediate delivery, 10s. has still to be paid for fine quality. From quay, delivery next week, ordinary 5% refraction may be had at 9s. 6d. per cwt., and refined at 9s. 9d.

There is a moderate enquiry for dried blood, and its is probably nearest value of fine home prepared, free rails at works. River Plate is worth 10s. to 10s. 6d. per unit.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The situation here since last week remains unchanged, nor is there much prospect of improved business until the dispute between employer and employé, which threatens to be prolonged, is settled. Although quotations are published they must be accepted as nominal, and business can only be satisfactorily arranged so far as they apply to forward quotations. Refined cotton oil has improved about 10s. per ton. Linseed oil has been in poor demand, the value on spot having slightly declined, though the market closes steady. Present prices are: Linseed oil, in casks, 20s. 3d. per cwt.; ditto boiled and refined, 21s. 3d. and 22s. 3d. respectively; forward, 19s. 6d. naked, May-August; 18s. 6d. last four months. Cotton oil firmer. Crude, 19s.; refined ditto, in casks, 21s. 3d. spot; forward, naked, May-August, 20s. 9d.; for next season, Nov.-April, 18s. 6d. naked would be taken. Refined rape, in casks, 26s. 9d.; olive oil unchanged. Turpentine: American, 23s. 6d. Barrels free.

CAKES.—Linseed cakes are nominally unchanged, but the supplies at the mills are about exhausted, with very small prospects of making more in the near future. Cotton cakes are firm, and in view of present very small production, crushers are inclined to advance prices.

PAINTS.—Business here in paints, colours, and varnishes is very brisk, many firms being compelled to work overtime to get through their orders. Consequently, prices are maintained. Red lead, white lead, and zinc oxide are unchanged. Dry venetian red £6. to £10. per ton; oxide of iron, £9. to £18 per ton; French ochre, 60s. to 65s. per ton; fine linseed-oil putty, £6.; ready-mixed paints, in tins of 11b. to 14lb., 28s. to 30s. per cwt.

THE LIVERPOOL MINERAL MARKET.

The mineral market is somewhat improved this week. Manganese: Arrivals are very small, and prices are steady, with an upward tendency. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) quiet, with probability of a further decline; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) very brisk, at full prices: lump 20s., seconds 16s., thirds 12s. French chalk: the demand for "Angel White" brand is very great, and prices are

rising, whilst shipments are very backward. Barytes: Carbonate very scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland very slow. Santander and manganiferous continue quiet. Emery-stone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth steady; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal is in good demand, and prices are firm. Chrome ore, best qualities are in good demand, at full prices. Antimony ore steady at £12., and metal £43. to £45. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in fair demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 40s. 8d. cash. Middlesbrough 34s. cash, and Hematite 45s. 5d. cash. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 10s. to £44. 16s. 3d. cash, and £44. 18s. 9d. to £44. 17s. 6d. three months. Tin weak: Straits closed at £92. 15s. to £92. 12s. 6d. cash and £88. 5s. three months. Australian, £93 7s. 6d. cash. English ingots, £96. Lead, steady: Spanish, £9. 13s. 9d. to £9. 15s. English, £9. 15s. to £9. 17s. 6d. Silesian spelter: Ordinary, £18. to £18 2s. 6d. Nickel, 1s. 8½d. per lb. Antimony, £41. 10s. Quicksilver: First hands, £6. 15s., second hands, £6. 13s. 6d. Copper shares dull: Cape, 1½ to 1⅞. Copiapo, 2½ to 2¼. Libiola, 3 to 3¼. Mason and Barry, 2½ to 2¼. Rio Tinto, 15½ to 15¼. Tharsis, 4½ to 4¼. Namaqua, 1 to 1¼. Panulcillo, 1 to 1½.

WOLVERHAMPTON, WEDNESDAY.—Market again disorganised by continued Australian bank failures. It was announced that firms hitherto dependent upon colonial demand for galvanised sheets are now pushing the South American, Indian, and African markets as much as possible. Orders sent by mail from Australia have in some instances been countermanded by cable. Galvanised corrugated sheets 24 gauge £12. 5s. for best sorts delivered to London merchants for the Australian trade; inferior descriptions £1. less. Some producers of Midland pig iron are declared to be losing 3s. or 4s. per ton by present prices.

GLASGOW, WEDNESDAY.—Market steady, with fair business. Scotch done at 40s. 9d. and 40s. 8½d. cash; closing with buyers at 40s. 8d. cash, and 40s. 10d. one month, sellers ask ½d. more. Middlesbrough closes with buyers at 34s. 0½d. cash, and 34s. 2½d. one month, sellers ask 1½d. more. Hematite closes with buyers at 45s. 5d. cash, sellers ask 45s. 7d.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals trade is fairly steady, and Baltic shipments commencing in good earnest. Bleaching powder is still in demand at £8. 5s. per ton. Caustic soda quiet; price unaltered. Sulphur in more enquiry at £4. 2s. 6d. per ton. Soda crystals £2. 10s. per ton locally.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. 8s. per ton, 52%, £4. 15s. per ton, 56%, £5. 2s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8¾d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminat of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt. Considerable sales have recently taken place, and price is steady at 9s. 1d. and 9s. 3d. per ton, f.o.b. Tees.

Coals: There is still a good demand for best Northumbrian steam, at 8s. 6d. and 8s. 9d. per ton; second qualities, 8s. per ton; small coal, 3s. 6d. per ton; gas coals vary much in price, at 6s. and 7s. per ton for best Durham; coke steady, at 13s. 6d. per ton; household and bunker coals depressed, and in poor demand.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia has given way very decidedly since last time of writing, and spot and forward prices have been rapidly nearing each other. At the close of the week, holders found they could no longer sell at £12. spot, and the mart is now below that, with a further descent looked for. Forward quotations stand at £11. 10s., but there is hardly anything doing; for either forward or prompt.

Bleaching powder continues firm at the old quotation, and the demand for prompt supplies seems to have increased slightly. In some of the other chemicals there is rather more doing in the shipping section, but soda products are still idle. Prices are nominally as before.

Dye chemicals now move off with more of life since the dyeworks became more fully employed, as a consequence of Lancashire supplies of yarns, &c., being gradually resumed in normal force.

Mineral oils and paraffins are all very weak, and with the outlook such as to cause uneasiness. The first of the mineral oil companies to declare has this year nothing for the ordinary shareholders, and preference interest it pays out of the reserve fund.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; saltcake, 25s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 9d., less 5% Liverpool; nitrate of soda, 10s. 3d.; sulphate of ammonia, spot £11. 15s. to £11. 17s. 6d. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33., less 2½%, any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 86°, £3. 15s.; 88°, £4. 5s. to £5. 15s., and 89/89½°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 68,624 bags.

New Companies.

Eden and Thwaites, Ltd.—CAPITAL £100,000. in shares of £10. each. This company has been formed to take over the business of Bleachers, etc., hitherto carried on by Mr. Thwaites at the Waters Meeting Bleach Works, in Astley Bridge, near Bolton, under the style of Eden and Thwaites, and to carry on the business of dyers, bleachers, finishers, and printers. The subscribers to the memorandum of association are:—T. H. Thwaites, Sharples, Bolton, bleacher; A. Mather, Bolton, engineer; E. Woodlard, Bolton, bank manager; E. N. Ashworth, Bolton, land surveyor; S. Charlton, Sale, Cheshire, stockbroker; W. Illingworth, Blackburn, stockbroker; H. Crook, Bolton, cashier.

Peter Reid and Sons, Ltd.—CAPITAL £75,000. in £100. shares. This company has been formed to acquire the whole or part of the business, property, etc., of Peter Reid and Sons, of Pendleton, Salford, and to carry on the business of bleachers, dyers, calico printers, etc. The subscribers to the memorandum of association are:—J. T. Reid, Pendleton, bleacher, etc.; A. Reid, Pendleton, bleacher, etc.; M. A. Hall, Oldham, married woman; M. P. Hall, Oldham, engineer; M. Reid, Pendleton, widow; A. Dixon, Irlams-o'-the-Height, cashier; W. Ferguson, Cheetham.

Societe Generale des Petroles Franco-Algeriens, Ltd.—CAPITAL £200,000. in £1. shares. This company has been formed to purchase petroleum or oil bearing properties and to produce merchantable petroleum and all kinds of oils in the French colony of Algeria or elsewhere. The subscribers to the memorandum of association are:—W. H. Woodward, Sidcup, Kent, accountant; W. Wilcocks, Croydon, solicitor; T. W. Dupree, Tufnel Park, N., insurance agent; A.

Strinder, 47, Cornhill, E.C., solicitor; W. H. Ball, 142, Hurlingham-road, S.W., clerk; C. O. Greenwell, 63b, Elizabeth-street, S.W., secretary; A. H. S. Daniel, 58, Lombard-street, E.C., gentleman.

Washington Chemical Co., Ltd.—CAPITAL £40,000. in £5. shares. This company has been formed to acquire and take over as a going concern the properties of the firm of the Washington Chemical Co., now carrying on business at Washington, Durham. The subscribers to the memorandum of association are:—F. S. Newall, Chester-le-street, chemical manufacturer; H. F. Newall, Chester-le-street, married woman; A. Newall, Salisbury, gentleman; C. J. Banks, Washington, Durham, wire rope maker; H. F. Newall, M.A., Magdalen Rise, Cambridge; J. H. Leathart, Gateshead, lead manufacturer; J. A. Sisson, Newcastle-on-Tyne, accountant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Linoleum Oil. J. E. Bedford and C. S. Bedford. 7,742. April 17th.
Photographing in Colours. J. Joly. 7,743. April 17th.
Obtaining Chlorates of the Alkalies or Alkaline Earth Metals by Electrolysis. W. T. Gibbs and S. P. Franchot. 7,756. April 17th.
Apparatus for Evaporation of Liquids. W. Donaldson. 7,761. April 17th.
Apparatus for Producing and Utilising Cyanogen or Cyanides and other Substances from Gas containing Carbonaceous Matter, Ammonia, Nitrogen or Compounds thereof. H. Aitken. 7,794. April 17th.
Production of Peroxide of Lead and certain Bye Products. C. Ullmann. 7,799. April 17th.
Manufacture of Carbonate of Ammonia. C. Raspe. 7,846. April 18th.
Improved Apparatus for Concentrating Sulphuric Acid. R. Wilson. 7,895. April 19th.
Purifying Sewage and Waste Waters by Precipitation and Oxidation, and Treatment of the Refuse therefrom. J. Fenton. 7,929. April 19th.
Treating Town Refuse and obtaining a valuable product therefrom in apparatus for the purpose. H. B. Ransom. 7,958. April 19th.
Electro-plating Aluminium. H. D. Cunningham. 8,035. April 20th.
Producing Silicates suitable for Glass-making and Recovering Hydrochloric Acid as a Bye Product. H. C. Bull. 8,064. April 21st.
Dye Stuffs. H. E. Newton. 8,093. April 21st.
Manufacture of Cyanides. J. Young. 8,148. April 22nd.
Improvements in the Manufacture of Celluloid Goods. G. Roberts. 8,165. April 22nd.
Improved Electrolytic Apparatus. C. Hanbury. 8,176. April 22nd.
Improvement in Electrolysis. E. Andreoli. 8,177. April 22nd.
New Sulphoacids of Phenylrosinduline and Analogues and Homologues thereof. J. Y. Johnson. 8,184. April 22nd.

GERMAN PATENTS for week ending MAY 6, 1893.

Specially abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

12 F. 5,900. Preparation of Cresotinic Acid—Acetylaminodiphenylesters (addition to patent No. 62,533). Farbenfabriken i/Elberfeld.
12 F. 6,091. Saponification of Phenol Ethers by means of Aluminium Chloride. Farbenfabriken i/Elberfeld.
22 F. 6,147. Preparation of α -Naphthol from α -Naphthylamine. Farbwerke i/Höchst.
22 F. 6,577. Preparation of Condensed Compounds from Formaldehyde, with Nitrophenols and Nitrophenolesters. Farbwerke i/Höchst.
89 S. 7,109. Purifying Beet Saps with Oxysulphate of Iron. Dr. M. Spunt and Dr. Sachtrupp, Landsberg.
12 H. 12,476. Preparation of Aldehydoguajacol-Carbonic Acid. Dr. F. V. Heyden, Nachfolger i/Radebeul.
22 F. 6,194. Preparation of β -Diamidophenyl-Benzimidazol. Farbwerke i/Höchst.
22 F. 6,295. Preparation of Monosulphonic Acid of α , β , Naphthohydrochinone. Farbenfabriken i/Elberfeld.
75. Recovering Ammonia from Coal-Gas and from Ammoniacal Liquors obtained from Distilling Coal and Peat. E. De Cryper i/Mous.
75. Preparation of Chemically Pure Ammonium Carbonate. C. Raspe, Berlin.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

J. F. JOHNSTONE and J. W. SCHOLES, oil merchants and drysalers, Kent and Essex Wharf, Lower Shadwell, E., under the style of Johnstone and Scholes.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

CORRIE WILKIN, and BROWN, ERNEST, Cheshire, trading together in co-partnership as Corrie Cook and Co., Liverpool, perfume manufacturers.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending April 22nd.

Acetanilide —	
Holland,	2 pkgs. Beresford & Co.
Acetate of Lime —	
France,	317 pkgs. H. Lorenz
Acetic Acid —	
Holland,	15 pkgs. H. & A. Hawley
"	50 J. Owen
"	100 A. & M. Zimmermann
Acetone —	
Germany,	1 pkg. T. Palmer
Alkali —	
France,	550 c. Arnati & Harrison
Aluminium —	
France,	244 Major & Field
Belgium,	16 Findlay, Durham & Co.
Ammonia —	
Holland,	40 pkgs. H. Lorenz
Antimony —	
Portugal,	50 t. P. Jantzen
Barytes —	
Holland,	23 cks. O'Hara & Hoar
Germany,	25 H. Lambert
"	23 W. Harrison & Co.
Belgium,	20 P. Jantzen
Bromine —	
Germany,	71 pkgs. A. & M. Zimmermann
Caoutchouc —	
U. States,	7 c. Williams, Torrey & Co.
Portugal,	4 Findlay, Durham & Co.
E. Indies,	74 Prop. Bull Wf
France,	20 Flageolet & Co.
Cape,	2 L. & I. D. Jt. Co.
Madagascar,	63 Hammond & Co.
Zanzibar,	2 L. & I. D. Jt. Co.
"	68 Clarke & Smith
Madagascar,	9 Proctor Bros.
"	42 Lewis & Peat
Castor Oil —	
E. Indies,	10 cs. Co-op. Light Ascn. Ltd.
Belgium,	15 brls. Fuerst Bros.
"	30 Burrell & Co.
Caustic Potash —	
France,	11 drs. Spies Bros. & Co.
"	200 c. Carey & Sons.
"	65 Petri Bros.
Caustic Soda —	
Holland,	325 c. Beresford & Co.
Chemicals (otherwise undescribed)	
Germany,	5 pkgs. W. Burton & Sons.
"	54 T. H. Lee
"	6 L. & I. D. Jt. Co.
"	15 Phillips & Graves
"	49 A. & M. Zimmermann
Holland,	112 W. Beresford & Co.
Norway,	14 pkgs. B. & F. Wf. Co.
Germany,	2 Pickford & Co.
"	5 Craven & Co.
"	112 A. & F. White & Co.
Cream of Tartar —	
Spain,	5 pkgs. B. & F. Wf. Co.
France,	10 M. Ashby, Ltd.
"	5 F. C. Devon & Co.
"	10 C. F. Gerhardt
"	5 W. C. Bacon & Co.
"	6 E. W. Carling & Co.
"	2 Maconochie Bros.
Dyestuffs —	
Aniline	
Belgium,	12 pkgs. Sawyer Sons & Co.
Argols	
Cape,	6 pkgs. L. & I. D. Jt. Co.
Italy,	333 B. Jacob & Sons.
Cochineal	
Cameroon,	20 pkgs. Johnson, Hicks & Co.
"	45 Hammond & Co.

Extracts	
France,	47 pkgs. Union L. Co. Ltd.
Denmark,	9 J. T. Morton
"	7 Bailey & Leatham
"	8 R. J. Fullwood & Bland
France,	85 L. J. Levinstein & Sons.
"	15 cks. B. & F. Wf. Co.
Gambier	
E. Indies,	919 pkgs. Brinkman & Co.
"	400 L. & I. D. Jt. Co.
"	2,244 Butler's Wf. Ltd.
"	872 S. Figgis & Co.
Indigo	
E. Indies,	30 cts. Ross & Deering
"	29 L. & I. D. Jt. Co.
"	9 Williams, Torrey & Co.
"	72 W. Brandts, Son & Co.
"	24 Arbuthnot, Latham & Co.
"	11 Beneche Souchay & Co.
"	5 R. Von Glehn & Sons
"	1 Davies, Turner & Co.
"	10 F. W. Heilgers & Co.
Myrabolams	
E. Indies,	1,314 pkgs. J. Graves
"	683 Hoare, Wilson & Co.
"	2,883 A. Hagan
"	683 H. A. Litchfield & Co.
"	4,422 W. Shelcott
"	402 Anderson, Weber & Smith
Orchella	
Portugal,	77 pkgs. Prop. Bull Wf.
E. Indies,	21 L. & I. D. Jt. Co.
Saffron	
Spain,	1 pkg. Price, Hickman & Co.
Tanners' Bark	
Natal,	29 t. A. & W. Nesbitt
"	35 Hicks, Nash & Co.
Belgium,	15 Arnati & Harrison
"	25 Bevington & Sons
Turmeric	
E. Indies,	1,200 pkgs. J. P. Alpe & Co.
"	300 Ross & Deering
"	269 Anderson, Weber & Smith
Valonia	
A Turkey,	114 t. J. Graves
Farina —	
France,	3 pkgs. Flageolet & Co.
Holland,	498 J. Forsey
Belgium,	20 T. H. Lee
Glucose —	
U. States,	500 pkgs. 500 cwt. R. G. Hall & Co.
"	300 1,811 L. Suto & Co.
"	100 600 Page Son & East
"	100 579 R. G. Hall & Co.
"	250 250 Williams, Torrey & Co.
France,	400 400 Trier Meyer & Co.
"	200 200 Barrett
U. States,	200 200 Tagant & Co.
"	8 35 L. & I. D. Jt. Co.
"	8 44 Beck & Pollitzer
Lead Acetate —	
Germany,	12 pkgs. F. Boehm
Manganese —	
E. Indies,	800 t. Sawyer, Sons & Oakley
"	1,450 Macqueen Bros.
Holland,	20 pkgs. Beresford & Co.
Manure —	
France,	200 t. J. Burnett & Co.
Germany,	5 F. W. Berk & Co., Ltd.
"	50 Nitro Phosphate Co.
France,	142 A. Hagan
"	70 J. Burnett & Sons
Methyl Alcohol —	
Germany,	10 dms. Lister & Biggs
Mica —	
E. Indies,	2,685 W. M. Smith & Sons.
"	480 E. Davis & Co.

Dohre—

France,	150 cks. W. Harris & Co.
A Turkey,	22 M. D. Co.
Holland,	22 pkgs. Phillips & Graves

Painters' Colours—

Germany,	13 pkgs. L. & I. D. Jt. Co.
"	71 T. H. Lee
"	2 Phillips & Graves
France,	18 Flageolet & Co.
Belgium,	26 T. Palmer
Holland,	2
Germany,	34 G. Steinhoff
France,	8 Hernu, Peron & Co.
E. Indies,	1 Magee, Taylor & Co.
U. States,	9 cs. L. & I. D. Jt. Co.
Germany,	25 pkgs. Hernu, Peron & Co.
France,	2 Van Appen & Co.

Paraffin Wax—

U. States,	120 brls. Prod. Brokers Co.
"	100 C. Ogleby & Co.

Phosphate Rock—

France,	310 t. A. Hunter & Co.
"	143 D. de Pass & Co.
Belgium,	100 W. H. J. Alexander
"	50 Lawes Chemical Manure Co.
"	200 West & Penrose

Plumbago—

Holland,	62 cks. B. Gallaway
Ceylon,	63 brls. Prop. Sun Wf.
Germany,	20 cks. B. Gallaway

Potash—

France,	110 c. Petri Bros.
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Potassium Bicarbonate—

Germany,	10 pkgs. A. & M. Zimmermann
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Potassium Carbonate—

France,	60 c. J. A. Reid
"	10 Spies Bros. & Co.
Germany,	30
France,	600 Charles & Fox
"	110 Carey & Sons
"	146 Ldn. & Cont. Wf.

Potassium Oxymuriate—

Belgium,	20 pkgs. G. Boor & Co.
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Potassium Sulphate—

Germany,	406 pkgs. Co-op. L. Assn. Ltd.
France,	190 Petri Bros.

Pyrites—

France,	4 t. C. S. Lovell
Spain,	2,998 C. Tennant Sons & Co.

Quicksilver—

Italy,	100 flasks. H. Bath & Son
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Roain—

Belgium,	48 brls. Pillow Jones & Co.
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Saltpetre—

Germany,	193 cks. P. Hecker & Co.
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Silica—

Germany,	67 A. Haacke & Co.
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Soda—

Germany,	5 c. Craven & Co.
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Soda Ash—

France,	100 c. Cheswick Soap Co.
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Sodium Acetate—

France,	27 pkgs. S. F. Waters & Co.
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Sodium Nitrate—

Germany,	3 pkgs. Page, Son & Co.
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Stearine—

Holland,	15 cks. H. Hill & Sons
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Talc—

France,	15 G. G. Blackwell
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Tallow—

N Zealand,	19 cks. Sollas & Sons
"	53 Flack, Chandler & Co.
"	10 Hoare, Wilson & Co.
Cape,	6 Price's Candle Co.
Natal,	13 A. & W. Nesbitt
U. States,	320 Ross & Deering

France,	12 H. Hill & Sons
Oland,	218 Phillips & Graves
N. Zealand,	35 N. M. & A. Co., of N. Z.
"	4 Hicks, Nash & Co.
"	10 Culverwell, Brooks & Co.

Sydney,

32 cks.	Beresford & Co.
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Tartaric Acid—

Germany,	15 pkgs. Middleton & Co.
"	19 B. & F. Wf. Co. Ltd.

Turpentine—

France,	15 cks. T. Trapp & Sons.
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Ultramarine—

Holland,	6 cs. B. Gallaway
Germany,	10 G. Steinhoff
Belgium,	2 brls. W. Harrison & Co.
"	1 G. Hotellberg & Co.
"	5 pkg. C. J. Capes & Co.

Varnish—

France,	18 pkgs. Flageolet & Co.
U. States,	10 C. S. Lovell
"	12 H. Johnson & Sons

White Lead—

Germany,	25 brls. M. Ashby Ltd.
Holland,	29 cks. T. & W. Farniloe
"	29 A. & M. Zimmermann
Germany,	21 Petri Bros.
"	10 J. Watt & Son
"	14 pkgs. H. Lambert
U. States,	30 brls. J. Matton
"	3 pkgs. Blundell, Spence & Co.
Holland,	25 cks. S. H. Willoughby

Zinc Oxide—

Holland,	140 brls. M. Ashby, Ltd.
"	625 cks. Soundy & Sons

LIVERPOOL.

Week ending April 20th.

Barytes —	
Rotterdam,	3 cks.
Bone Ash —	
Campana,	219 bgs.
Bone Meal —	
Bombay,	1,000 bgs.
Borate of Lime —	
Antofagasta,	2,764 bgs.
Caoutchouc —	
Havre,	34 pkgs. Cunard S. S. Co., Ltd.
Castor Oil —	
Calcutta,	300 cs.
Antwerp,	84 brls.
Chemicals (otherwise undescribed)	
Rotterdam,	2 cks.
Colours —	
In transit,	102 pkgs. Cunard S. S. Co., Ltd.
Hamburg,	16 cks.
Ghent,	2 brls. J. T. Fletcher & Co.
Rotterdam,	3 cs. 1 ck.
Cream of Tartar —	
Barcelona,	15 cks. 7 hds. 6 bts.
Dyestuffs —	
Argols	
Patras,	14 cs. M. D. Frangopoulou & Co.
Cochineal	
Teneriffe,	50 bgs. Brown, Shipley & Co.
Divi Divi	
Hamburg,	781 bls.
Extracts	
New York,	24 brls.
Fustic	
Tampico,	6,200 ps. Oetling & Co.
Vera Cruz,	1,150 logs. R. B. Watson & Co.
"	1,450 blocks. Rosing Bros.

Myrabolams
Calcutta, 2,816 pkts. Ralli Bros.
Bombay, 3,442 bgs. D. Sassoon & Co.
" 335 Forbes, Forbes & Co.
" 102 W. & R. Graham & Co.

Indigo
Bombay, 50 cs.
Orchella
Lisbon, 20 bls. A. Barbosa & Co.
" 32 13 bgs. Edwards
" 23 J. Martin & Son

Valonia
Marathonisi, 107½ t. Papayanni & Co.
Syra, 538 bgs. A. C. Cozzifachi

Constantinople, 120 t.
Sumac
Palermo, 100 bgs. 400 bls.
Bordeaux, 111
Turmeric
Lagos, 6 bgs.
Bombay, 50 D. Sassoon & Co.

Farina
New York, 200 bgs.
Hamburg, 100 Browne, Geveke & Co.

Glucose
New York, 500 brls.

Iodine
Iquique, 49 brls.
Pisagua, 34 A Gibbs & Sons

Lead Acetate
Hamburg, 20 cks.

Nickel Oxide
New York, 37 cks.

Nitrate
Iquique, 1,060 bgs. Hainsworth, Watson & Co.

Ochre
Rouen, 21 cks. R. J. Francis & Co.
" 130 Co-op. W'sale Society

Paint
Boston, 5 cs. S. Brickewick & Co.
In transit, 6 cks.

Paraffin Scale
Philadelphia, 230 brls. E. F. Saunders
" 1,000

Phosphate
Ghent, 500 bgs.

Phosphoric Acid
Hamburg, 12 cks.

Pitch Oil
Rotterdam, 10 cks.

Plumbago
Hamburg, 11 cks.

Potash
Rouen, 48 cks. Co-op. W'sale Society

Rosin
Bayonne, 390 brls.

Potash Salts
Hamburg, 5,750 bgs.

Saltpetre
Calcutta, 1,427 bgs.
Hamburg, 50 brls. 4 cks.

Soap
Marseilles, 18 cs. P. W. Nicholson
Constantinople, 6 M. V. Vallauri
Boston, 14 F. Newbury & Sons
" 10 Barclay & Sons

Sodium Nitrate
Tal Tal, 15,830 bgs. G. C. Dobell & Co.

Stearine
Rotterdam, 5 cs.
Antwerp, 3 bgs. J. T. Fletcher & Co.

In transit, 42
Philadelphia, 5 brls.

Tallow
Boston, 50 hds.
New York, 100
Accra, 1 brl. Taylor Laughland
Philadelphia, 50 cks. 49 hds.

Tin Oxalate
Rotterdam, 6 cks.

Ultramarine
Rotterdam, 15 cs. 4 cks.

Yarnish
New York, 20 cs. Larrinaga & Co.

Verdigris
Marseilles, 2 cks.

Waste Salt
Hamburg, 339½ t. 206 bgs.

White Lead
Antwerp, 12 cks.
Ghent, 8

Zinc Ashes
Antwerp, 8 cks. J. T. Fletcher & Co.

Zinc Oxide
New York, 100 brls. J. T. Fletcher & Co.

Hamburg, 25 cks.

Zinc White
Rotterdam, 170 cks. O. & H. Marcus

Zinc Skimmings
Boston, 186 bgs.

HULL.

Week ending April 22nd.

Acetic Acid
Rotterdam, 9 ballns. G. Lawson & Son

Alkali
Flushing, 1 cs.

Asbestos
Flushing, 5 cs. 5 bls.

Barytes
Antwerp, 64 cks. 100 bgs. Bailey & Leatham

Bone Meal
Kurrachee, 1,000 bgs.

Castor Oil
Leghorn, 5 cs. Wilson, Sons & Co., Ld.

Genoa, 55 pks.

Chemicals (otherwise undescribed)
Hamburg, 141 pks. Wilson, Sons & Co., Ld.
Rotterdam, 2 cks. W. & C. L. Ringrose
Stettin, 14 Wilson, Sons & Co., Ld.
Bremen, 2 cs. Veltman & Co.
Antwerp, 50 pks. Wilson, Sons & Co., Ld.

Marseilles, 9 " "

Colours
Flushing, 10 cks. 47 cs. Bailey & Leatham
Antwerp, 6 182 pks. W. & C. L. Ringrose
Rotterdam, 73 G. Lawson & Sons
" 7 Wilson, Sons & Co., Ld.
Stettin, 9 Wilson, Sons & Co., Ld.
Bremen, 26 Veltmann & Co.
Flushing, 20 1 cs. Wilson, Sons & Co., Ld.
Rotterdam, 3 6 pks. G. Lawson & Sons

Rouen, 2
Rotterdam, 15 9 Hutchinson & Son

Ghent, 18 Wilson, Sons & Co., Ld.

Antwerp, 86
Marseilles, 152 Wilson, Sons & Co., Ld.

Dyestuffs
Allzarine
Rotterdam, 3 brls. G. Lawson & Sons
" 49 pks. W & C. L. Ringrose
" 1 brl. 1 cs. Hutchinson & Son

Indigo
Kurrachee, 22 cs. Wilson, Sons & Co., Ld.

Myrabolams
Bombay, 5,695 bgs.

Valonia
Ragomestre, 100 t. Kuypes, Ostler & Scott

Manure
Ghent, 182 t. 205 bgs. Wilson, Sons & Co., Ld.

Mica
Christiania, 3 cs. Wilson, Sons & Co., Ltd.

Ochre
Marseilles, 32 cks. Wilson, Sons & Co., Ld.

" 96

Potash Salts
Bremen, 10 cks.

Rosin
Genoa, 4 pks. Wilson, Sons & Co., Ld.

Soap
Marseilles, 5 pks. 16 cs. Wilson, Sons & Co., Ld.

Stearine
Antwerp, 50 pks. Wilson, Sons & Co., Ld.

Talc
Genoa, 50 bgs. Wilson, Sons & Co., Ld.

Tar
Marseilles, 25 cks.

Turpentine
Libau, 50 cks.

Ultramarine
Bremen, 2 cs. J. Pyefinch & Co.
Rotterdam, 12 cks.

White Lead
Rotterdam, 20 cks. W. & C. L. Ringrose
" 20 Sissons, Bros. & Co.
" 16 A. Sanderson & Co.
" 39 Furley & Co.
Ghent, 4 Wilson, Sons & Co., Ld.

Zinc Oxide
Rotterdam, 25 cks. Sissons, Bros. & Co.

GLASGOW.

Week ending April 27th.

Alum
Hamburg, 118 cks.

Aniline Colours
Hamburg, 4 cs. 25 cks.

Barium Sulphate
Antwerp, 150 bgs. 101 cks.

Barytes
Rotterdam, 48 cks.
Hamburg, 50

Caoutchouc
Rouen, 1 cs.

Castor Oil
Antwerp, 85 cks.

Chloral Hydrate
Hamburg, 3 cs.

Chromium Sulphate
Rotterdam, 1 cs. J. Rankine & Sons

Colours
Rotterdam, 3 cs. 3 cks. J. Rankine & Son

Amsterdam, 1 2
Rotterdam, 37 pks.

Dyestuffs
Allzarine
Rotterdam, 29 cks. 3 cs. J. Rankine & Son
" 69 pks.

Cutch
Rangoon, 924 bks. Milne & Co.
" 50 Cowie, Bros. & Co.

Extracts
New York, 30 brls.
Baltimore, 50 M'Arthur, Scott & Co.
Antwerp, 4 cks.

Farina
Antwerp, 11 bgs.

Glucose
New York, 800 brls.

Guano
Christiania, 300 bgs.

Lead Acetate
Hamburg, 12 cks.

Ochre
Rouen, 5 cks.

Paraffin Scale
Philadelphia, 800 brls.

Phosphates
Ghent, 2,000 bgs.

Potash
Hamburg, 40 cks.

Rosin
Bordeaux, 26 cks.
New York, 2,800 brls.

Saltpetre
Hamburg, 5 cks.

Soda
New York, 10 brls.

Sodium Bichromate
Antwerp, 10 cks.

Sulphur
Palermo, 100 bgs.
Seville, 400 t. Seville Sulphur & Copper Co.

Tallow
New York, 35 tns.

Tartar
Bordeaux, 10 cks.

Waste Salt
Hamburg, 1,918 bgs.

White Lead
Rotterdam, 60 cks. J. Rankine

Zinc Oxide
Rotterdam, 25 cks. J. Rankine
New York, 20 brls.
Antwerp, 5 cks.

Zinc White
Rotterdam, 150 cks. J. Rankine
Hamburg, 50

TYNE.

Week ending April 2nd.

Alum
Hamburg, 10 cks. Tyne S. S.

Alum Earth
Hamburg, 13 cks. Tyne S. S.

Aniline Colours
Rotterdam, 1 ck. Tyne S. S.

Barytes
Antwerp, 65 cks. Tyne S. S.
Rotterdam, 48

Farina
Antwerp, 5 bgs. Tyne S. S.
Hamburg, 25

Glucose
New York, 375 brls. Tyne S. S.

Paint
Rotterdam, 5 drums. Tyne S. S.

Saltpetre
Hamburg, 3 cks. Tyne S. S.

Stearine
Antwerp, 6 pks. Tyne S. S.

Sulphur Ore
Pomaron, 960 t.

Tallow
New York, 80 hds. Tyne S. S.

GOOLE.

Week ending April 14th.

Alizarine
Rotterdam, 61 pks. 72 hds.

Antimony
Boulogne, 1 ck.

Caoutchouc
Boulogne, 1 ck.

Dyestuffs (otherwise undescribed)
Boulogne, 6 cks. 4 cs. 1 pk.

Farina
Hamburg, 6,700 bgs.
Delftzyhl, 3,800

Potash
Calais, 104 dms. 7 cks.
Bruges, 90 17

Pyrites
Seville, 1,150 t.

Saltpetre
Rotterdam, 100 bgs.
Hamburg, 8 cks.

Waste Salt
Hamburg, 286 cks.

GRIMSBY.

Week ending April 19th.

Albumen
Hamburg, 5 cs.
Dieppe, 1 ck.

Caoutchouc
Hamburg, 10 cs.

Chemicals (otherwise undescribed)
Rotterdam, 5 cks.
Hamburg, 25 pks.

Farina
Hamburg, 330 bgs.

Indigo
Rotterdam, 2 cks.

Tar
Dieppe, 4 cks.

Zinc Ashes
Antwerp, 15 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending April 26th.

10 cs.	£12
18 c.	£26
1 t. 1	16
9	22
1 t. 6 c.	£10
1 10	10
5 t. 6 c.	£30
um Carbonate—	
8 cs.	£13
4 c.	6
2 t. 10	65
um Chloride—	
4 cks.	£22
20	98
15	78
6 c.	9
um Nitrate—	
1 t. 7 c.	£75
um Sulphate—	
226 t. 18 c.	£2,663
51 13	655
20	232
20	250
102 12	1,247
106 15	1,312
242	2,857
30 6	322
13	165
ous Ammonia—	
4 c.	£27
1 t.	£17
Nitrate—	
9 c.	£10
de of Carbon—	
10 drs.	£10
1 t. 17 c.	33
5 c.	£7
2 t.	61
5	15
Acid—	
12 c.	£18
28 t. 17	771
4 6	182
4 5	164
9	13
Soda—	
13 c.	£24
1 t. 11	34
2	25
is (otherwise undescribed)	
1 ck. 1 kg. 2 dms.	£16
6 cs.	12
Salts—	
3 c.	£36
4 c.	£34
15	120
1 t.	160
16	123
1 1	168
1	8
ducts—	
1 cs.	£29
25 cks. 7 kgs.	256
5 drs.	£160
2 cs.	28
1	14
Salts	
12 cks.	£90
729 cks.	£3,529
330	1,576

Benzol

Rotterdam,	238 cks.	£912
Hamburg,	10 70 drs.	705
Philadelphia,	19	218
Boulogne,	30	240

Coal Tar Dyes

Yokohama,	10 cs.	£124
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Creosote

Danzig,	100 brls.	£47
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Naphtha

Wellington,	12 cs.	£18
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Naphthaline

Auckland,	20 drs.	22
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Nitro Naphthaline

Stettin,	50 cks.	£87
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Paraffin Wax

Brussels,	6 cks.	£50
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Pitch

Hobart,	4 tks.	£148
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Port Said

Port Said,	100 brls.	£38
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Alexandria

Alexandria,	200	78
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Bourgas

Bourgas,	30	9
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Dunkirk

Dunkirk,	140 t.	210
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Terneuzen

Terneuzen,	570	708
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Hochfeld

Hochfeld,	326	439
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New York

New York,	2,505 bgs.	461
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Boston

Boston,	350 cks.	191
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Galatz

Galatz,	65	21
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Varna

Varna,	30	9
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Brindisi

Brindisi,	1,445 t.	1,800
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Pyridine Bases

Hamburg,	6 drs.	£122
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Rotterdam

Rotterdam,	1	30
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Tar

Philadelphia,	250 cks.	£121
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Malmö

Malmö,	200 brls.	93
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Trepport

Trepport,	100	43
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Sulina

Sulina,	15	9
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Colombo

Colombo,	62 rns.	38
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Tar Salts

Hamburg,	10 cks.	£12
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Toluol

Rotterdam,	25 cks. 8 pns.	£141
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Coal Products (otherwise undes.)

Libau,	2 cs.	£55
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Copperas—

Kabat,	5 t.	£15
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Copper Sulphate—

Wellington,	10 c.	£8
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Lyttelton

Lyttelton,	3 t. 16	76
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Odessa

Odessa,	5 7	75
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Oporto

Oporto,	3 5	50
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Bordeaux

Bordeaux,	68	1,088
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Venice

Venice,	92 10	1,480
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Batoum

Batoum,	15 8	252
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Nelson

Nelson,	1	19
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Cream of Tartar—

Auckland,	10 kgs.	£44
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Canterbury

Canterbury,	1 t.	77
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Wellington

Wellington,	1 7 c.	106
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Dunedin

Dunedin,	1 10	118
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Rockhampton

Rockhampton,	2	164
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Melbourne

Melbourne,	1	79
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Algoa Bay

Algoa Bay,	2	11
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Lyttelton

Lyttelton,	10	44
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Sydney

Sydney,	2	170
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E. London

E. London,	3	15
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Disinfectants—

Suez,	12 pkgs.	£18
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Trepport

Trepport,	4 t. 15 c.	38
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Bombay

Bombay,	20 drs.	15
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Antigua

Antigua,	4 cs.	12
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Sydney

Sydney,	2 tks.	35
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Boston

Boston,	23 pkgs.	63
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Surinam

Surinam,	7	13
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Colombo

Colombo,	3 cs.	6
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Trinidad

Trinidad,	18 c.	24
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Flowers of Sulphur—

Fremantle,	2 t.	£14
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E. London

E. London,	13 3 c.	139
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Newcastle

Newcastle,	3 10	32
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St. Michaels

St. Michaels,	1 3	11
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Guano—

Barbadoes,	4 t.	£14
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St. Kitts

St. Kitts,	25	275
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Dominica

Dominica,	16	176
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Nevis

Nevis,	12	132
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Hydrofluoric Acid—

E. London,	4 cs.	£25
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Hypophosphites—

New York,	25 cs.	£200
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Hypophosphite of Lime—

Rotterdam,	5 cs.	£40
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Iodoform Crystals—

B. Ayres,	1 cs.	£18
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Manure—

St. Kitts,	34 t. 11 c.	£338
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Guernsey

Guernsey,	2 2	28
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Sourabaya

Sourabaya,	54 5	594
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Hamburg

Hamburg,	15	7
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Gothenburg

Gothenburg,	245 6	770
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Gandia

Gandia,	680	5,100
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Cherbourg

Cherbourg,	61	366
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Demerara

Demerara,	50	500
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Nitrate of Barium & Strontia—

Bombay,	2 cks.	£15
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Phosphoric Acid—

Philadelpia,	35 hmpers.	£165
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Phosphorus—

Pt. Elizabeth,	8 c.	£50
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Potassium Chlorate—

Bombay,	9 c.	£38
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Lisbon

Lisbon,	5	20
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Potassium Oxalate—

Yokohama,	5 c.	£11
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Saltpetre—

Dunedin,	10 c.	£12
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Bombay

Bombay,	10	11
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Libau

Libau,	1 t. 1	28
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Gibraltar

Gibraltar,	11	241
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Cape Town

Cape Town,	10	11
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Sao Paulo

Sao Paulo,	11 8	256
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M. Video

M. Video,	1 8	30
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Rio de Janeiro

Rio de Janeiro,	2 15	61
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St. Vincent

St. Vincent,	5	103
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Adelaide

Adelaide,	5	110
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Sheep Dip—

Pt. Elizabeth,	550 drs.	£89
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E. London

E. London,	500	100
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Algoa Bay

Algoa Bay,	255 pkgs.	68
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Auckland

Auckland,	2 cs.	10
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B. Ayres

B. Ayres,	1,000	3,000
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Geraldton

Geraldton,	14 c.	31
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Soda—

Bombay,	1 t.	£5
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Soda Ash—

Wellington,	19 t. 19 c.	£109
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Samarang

Samarang,	6 16	44
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Portland, N.
Rotterdam

Portland, Me.,	100
Rotterdam,	374
San Francisco,	1,005
Wellington,	2
Winnipeg,	2

Saltcake—

Baltimore,	234 1/2	12 1/2
Saltpetre—		
Boston,		19 1/2
Barcelona,	3 1/2	71
Para,	10	18
B Ayres,		11
Payta,		1
Maceio,		6

Margabam,

sheep dip—
Punta Arenas, 25 cts.
Baltimore, 90
Portland, O., 1 lb. 10.
Cincinnati, 1 lb. 10.

Capetown,
Nileca—

Gijon,	20 bgs.
Soap—	
Akassa,	50 dms.
Baltimore,	

Barbadoes,

Bombay,	510	1	11
Brussels,		100	
Calcutta,	10	12	11
Callao,	58		
Constantinople,			

Curacao,

Manila,	4
Piræus,	11
St. John's, Nfld.,	20
Salonica,	20

Aocra,
Alexandria

Algoa Bay,	100
Assinee,	10
Axim,	191
Bakana,	2

C. C. Castle,
Cape Town

Capetown,	500	
Dominica,	40	
Durban,	80	
E. London,	1,975	
Gibraltar,	330	

Hamburg,

Havre,	430
Hong Kong,	100
Iquique,	10
Jersey,	20
Kiøbenhavn, L.	1,200

Lagos,

Macassar,	1,000
Monrovia,	431
Mossel Bay,	1,220
New York,	
Onch,	

Opobo,
Penzang,

Pl. Elizabeth, 675
 „ Natal,
 Rangoon,
 Shanghaï, 4,544

Singapore,
Smyrna.

oda Alkali—
Salonica. 45 bbls

Genoa,

La Libertad, 155
oda Ash—
Antwerp, 125 80
Baltimore, 900 clcs.

Barcelona,
Boston.

Brisbane,	126	30
B. Ayres,	126	30
Genoa,		30
Hamilton,	74	

Leghorn,
Massachusetts

Montreal,	33	
Napanee,	12	
New York,	635	5,500
Philadelphia,	456	1,417

Port Lyttelton

Preston, Ont.,	11	
Rotterdam,		170
Sherbrooke,		17
Toronto,	46	
Trieste,	3	

Bombay,

Calcutta,	83	1974
Lisbon,	20	
Maccio,		
Oporto,	15	
Picasso,	20	

Pt. Elizabeth

Rio de Janeiro, 37
Rosario,
Santos,
Trebizonde,
Muniz

Yehliu

als—	997 brls. 500 kgs. 50 cks.	
mt.,	13 66	4 cks.
	85	20 cks.
	105	18 cs.
rina,	25	
at.,	13 200	
at.,	56 20	
vn.,	30	
h.,	167	
seniate—	2 cks.	
arseniate—	35	
borate—	11 cks.	
carbonate—	200 kgs. 20 cks.	
ple,	8 225	15
h.,	550	40 bgs.
h.,	525	20 brls.
rina,	25	
at.,	20	
h.,	50	12
	6	4
vn.,	30	
h.,	75	
	40	
	50	
	25	1
	100	
	80	
	85	
h.,	20	
	320	79
chromate—	4 cks.	
rbonate—	30 pkgs.	
lorate—	40 kgs. 10 brls.	
posulphite—	34 brls.	
trate—	3 cks.	
icate—	40 brls.	
	20 cks.	
	20	
	20	
annate—	5 brls.	
lphate—	40 dms.	
iro,	150 bgs.	
	41 cs.	
	2 L. 6 c.	£20
	15 3 1 q.	88
	208 19	821
	1	8
phate—	50 t. 10 c. 1 q.	£124
	2	6
	1	5
cid—	2 c.	£15
	2	11
	1 1 q.	7
	8 cs.	£6
	2 cks.	
	14 dms.	
	2 cs	
	8 galls.	
	14 cks 10 cs. 1 dm.	
	2 1	
	2 2 3 brls.	
	6 10	
	1	
d—	200 kgs.	
ide—	14 t.	£80

HULL.

Week ending April 22nd.

Bleaching Powder—	Libau, 68 cks.	
Caustic Soda—	Konigsberg, 18 dms.	
	Libau, 48	
Chemicals (otherwise undescribed)	Copenhagen, 14 cs.	
	Christiania, 19 cks. 17 pkgs.	
	Hamburg, 1 6 pks. 194 cs.	
	Konigsberg, 1	
	Libau, 168 644	
	Rotterdam, 18	
	Reval, 202	
Cottonseed Oil—	Copenhagen, 102 c.	
	Flushing, 200	
	Hamburg, 469	
Dyestuffs (otherwise undescribed)	Hamburg, 1 cs.	
	Libau, 1	
	Reval, 1 ck.	
Linseed Oil—	Copenhagen, 28 c.	
	Christiania, 307	
	Hamburg, 738	
Ochre—	Hamburg, 3 cks.	
Painters' Colours—	Amsterdam, 13 cks.	
	Copenhagen, 2 dms. 2 cs.	
	Christiansand, 134 pkgs	
	Hamburg, 1	
	Libau, 36	
	Rotterdam, 2	
Size—	Christiania, 7 cks.	
	Rotterdam, 20 bls.	
Sulphur—	Hamburg, 6 cks.	
Tar—	Amsterdam, 6 cks.	
Varnish—	Copenhagen, 2 dms.	
	Rotterdam, 3 cks.	

GLASGOW.

Week ending April 27th.

Acid—	Rangoon, £51	
Alkali—	Hamburg, 5 t. 3½ c.	£165
Ammonium Sulphate—	Mauritius, 224 t. 14½ c.	£2,315
	Java, 200 6¼	1,914
Boracic Acid—	Hamburg, 1 ck.	£2. 9s.
Borax—	Christiania, 5 t. 3½ c.	£8
	Cape Colony, 2 t. ½	61
Caustic Soda—	Freemantle, 7 t. 5½ c.	£70
Coal Products—	Benzol	
	Hamburg, 18 dms.	£208
	Rotterdam, 10 pns	£75
	Creosote	
	Stockholm, 28 cks.	£42
	Christiania, 30 cks.	£12
	Danzig, 2	£1 16s.
	Pitch	
	Danzig, 103 t.	£164
	St Nazaire, 750	
	Tar	
	St. John's, Nfld., 60 brls. 60 hf. brls.	£24
	Christiania, 30 cks.	13
	Boston, 23 t. 15 c.	52
	Java, 80	
	Danzig, 1,450 brls.	509
	Hamburg, 50	25
	Tar Oil	
	Stockholm, 26 cks.	£50
Dried Blood—	Mauritius, 34 t.	£250
Dyestuffs—	Cutch	
	St. John's, Nfld., 1 t. 4¼ c.	£34
Guano—	Mauritius, 24 t. 12½ c.	£250
Linseed Oil—	Hong Kong, 19½ c.	£20. 10s.
	Shanghai, 1 t.	£25
	Rio de Janeiro, 5 3½	130
	St. John's, Nfld., 3 16¼	78
	Cape Colony, 3 12¼	60

Litharge—

Amsterdam,	8 cks.	£32
Paint—		
Shanghai,	7 t. 9 c.	£99
St. John's, Nfld.,	8 7	130
Straits,		200
Painters' Colours—		
Calcutta,	14 t. 9 c.	£232
Rangoon,		70
Freemantle,	1 9	30
Mauritius,	4 12½	71
Cape Colony,		36
Natal,		81
Java,	5	60
Paraffin Wax—		
Rio de Janeiro,	2 t. 5½ c.	£46
Christiania,	6 13¼	132
Hamburg,	12	260
Cape Colony,	6 ½	140
Danzig,	11	261
Potassium Bichromate—		
Boston,	6 t. 18½ c.	£258
Rotterdam,	27 cks.	498
Rosin Oil—		
Rotterdam,	10 brls.	£20
Sheep Dip—		
Chili,	4 t. 10 c.	£140
Soap—		
Rangoon,	4 t. 3 c.	£29
New York,	3 15	80
Cape Colony,	5 15½	144
Soda—		
St. John's, Nfld.,	1 t. 13 c.	£6
Sulphuric Acid—		
Rangoon,		£177
Java,		20
Tallow—		
Cape Colony,	9 t. 7½ c.	£352
White Lead—		
Cape Colony,	5 t. 8½ c.	£121

TYNE.

Week ending April 22nd.

Alkali—	Antwerp, 5 t. 12 c.	
	Amsterdam, 9 19	
	Rotterdam, 3 6	
Ammonia Alkali—	Gothenburg, 10 t. 5 c.	
	Aalborg, 10	
Ammonium Sulphate—	Valencia, 10 t.	
Antimony—	Hamburg, 1 t.	
Barium Hydrate—	Antwerp, 52 t. 15 c.	
Barytes—	Antwerp, 5	
	Hamburg, 119 16 c.	
Blanc Fixe—	Christiania, 5 t. 5 c.	
Bleaching Powder—	Antwerp, 11 t. 2 c.	
	Hamburg, 2 5	
	Christiania, 15 1	
	Lisbon, 6 5	
	Drontheim, 10 2	
	Copenhagen, 14 19	
	Amsterdam, 22 6	
	Gothenburg, 9 14	
	Rotterdam, 15 18	
Castor Oil—	Sarpsborg, 17 c.	
Caustic Soda—	Hamburg, 1 t. 14 c.	
	Seville, 45 17	
	Rouen, 4 18	
	Amsterdam, 19 13	
	Gothenburg, 4 19	
	Rotterdam, 15 8	
Copperas—	Viele, 1 t. 6 c.	
Linseed Oil—	Vianna do Castello, 1 t.	
Litharge—	Vianna do Castello, 6 c.	
	Antwerp, 2 t. 16	
	Hamburg, 1 6	
	Lisbon, 1 11	
	Rouen, 6	
	Copenhagen, 12	
	Amsterdam, 1 1	
	Rotterdam, 5	
Magnesia—	Vianna do Castello, 1 q.	
	Hamburg, 1 c.	
	Rouen, 7	

Magnesium Sulphate—

Vianna do Castello, 5 c.

Ochre—

Vianna do Castello, 5 c.

Christiania, 2 t. 8

Drontheim, 1 16

Oxalic Acid—

Amsterdam, 1 t. 2 c.

Paint—

Gothenburg, 3 t. 3 c.

Rotterdam, 3 c.

Antwerp, 17

Phosphorus—

Seville, 1 t. 12 c.

Potassium Bichromate—

Aalborg, 1 t. 4 c.

Soda—

Viele, 153 t. 18 c.

Oporto, 8 2

Christiania, 35 9

Arendal, 5

Bergen, 2 3

Christiansund, 2 19

Amsterdam, 47 10

Malta, 10 3

Gothenburg, 5 2

Aarhus, 15 7

Soda Ash—

Lisbon, 24 t. 14 c.

Christiania, 12 7

Gothenburg, 50

Sodium Bicarbonate—

Vianna do Castello, 4 c.

Sodium Sulphate—

Oporto, 7 t. 4 c.

Christiania, 5

Aarhus, 1 19

Sulphur—

Ghent, 20 t. 1 c.

Drontheim, 50

Sarpsborg, 400

Gothenburg, 65

Superphosphate—

Christiania, 17 t.

Valencia, 25 1 c.

Aarhus, 48 2

Aalborg, 60

Tallow—

Hamburg, 18 c.

Venetian Red—

Vianna do Castello, 1 t. 15 c.

White Lead—

Lisbon, 3 t. 5 c.

Gothenburg, 6 6

St. John's, Nfld., 10 6

Copenhagen, 5 3

GRIMSBY.

Week ending April 15th.

Chemicals (otherwise undescribed)	Dieppe, 2 cks.	
	Hamburg, 2 25 pkgs.	
Coal Products (otherwise undesc'd.)	Dieppe, 92 cks. 1 cs.	
Dyestuffs (otherwise undescribed)	Dieppe, 12 cks.	
Manure—	Esbjerg, 953 bgs.	

GOOLE.

Week ending April 12th.

Alkali—	Dunkirk, 30 dms.	
Benzol—	Ghent, 19 dms.	
Chemicals (otherwise undescribed)	Hamburg, 17 dms.	
	Rouen, 4 cks.	
	Rotterdam, 118	
Coal Products (otherwise undesc'd.)	Ghent, 6 cks. 12 cs.	
	Rotterdam, 151	
Dyestuffs (otherwise undescribed)	Boulogne, 3 dms. 1 ck. 1 cs.	
	Ghent, 1	
Manure—	Dunkirk, 672 bgs.	
	Hamburg, 196	
	Ghent, 100	
Pitch—	Antwerp, 439 t.	

PRICES CURRENT.

WEDNESDAY, MAY 31st, 18

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 10/6
" Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¼
Nitrous	"	0	0 1¼
Oxalic	nett	0	0 3
Phosphoric, 1750°	"	0	1 2½
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	0 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
" 150°	"	1	5 0
(free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	"	0	0 11¼
Arsenic, white powdered	nett per ton	13	15 0
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferri	"	2	10 0
Aluminium	per lb.	0	4 0
Ammonia, Anhydrous	"	0	1 2
" 880 = 28°	per lb.	0	0 2½
" = 24°	"	0	0 1¼
Carbonate	nett	0	0 3¼
Muriate	per ton	20	0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
Nitrate	per ton	39	0 0
Phosphate	per lb.	0	0 10½
Sulphate (grey) London	per ton	11	15 0
" (grey) Hull	"	11	15 0
Aniline Oil (pure)	per lb.	0	0 6¾
Aniline Salt	"	0	0 6¾
Antimony	per ton	45	10 0
(tartar emetic)	per lb.	0	1 0
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	8	0 0
Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20 %	nett per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 2
Benzol, 90 % nominal	per gallon	0	1 5
50/90	"	0	1 4
Carbolic Acid (crystallised 40°)	per lb.	0	0 7½
(crude 60°)	per gallon	0	2 6
Creosote (ordinary)	"	0	0 1
(filtered for Lucigen light)	"	0	0 1¼
Crude Naphtha 30 % @ 120° C.	"	0	0 10
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	"	1	5 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 0
"Lucigen" and "Wells" Oils	"	0	0 1¼
Copper	per ton	44	10 0
Sulphate	"	16	5 0
Oxide (copper scales)	"	42	0 0
Glycerine (crude)	"	13	0 0
(distilled S.G. 1250°)	"	43	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	12 6
Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	11	0 0
Litharge Flake (ex ship)	"	13	0 0
Acetate (white)	"	25	15 0
" brown	"	17	10 0
Carbonate (white lead) pure	"	20	0 0
Nitrate	"	20	0 0

Lime, Acetate (brown)	per ton	6	0
" (grey)	"	10	15
Magnesium (ribbon and wire)	per oz.	0	2
Chloride (ex ship)	per ton	2	7
Carbonate	per cwt.	1	17
Hydrate	per ton	17	0
Sulphate (Epsom Salts)	per ton	2	19
Manganese, Sulphate	"	17	15
Borate	per cwt.	2	12
Ore, 70 %	per ton	4	5
Methylated Spirit, 61° O.P.	per gallon	0	2
Naphtha (Wood), Solvent	"	0	3
Miscible, 60° O.P.	"	0	4
Oils:—			
Cotton-seed	per ton	22	10
Linseed	"	20	10
Lubricating, Scotch, 890°—895°	"	7	5
Petroleum, Russian	per gallon	0	0
American	"	0	0
Potassium (metal)	per oz.	0	3
Bichromate	nett per lb.	0	0
Carbonate, 90% (ex ship)	per ton	17	0
Chlorate	per lb.	0	0
Cyanide, 98%	"	0	2
Hydrate (Caustic Potash) 80/85 %	per ton	21	10
" (Caustic Potash) 75/80 %	"	20	10
" (Caustic Potash) 70/75 %	"	20	0
Nitrate (refined)	per cwt.	1	2
Permanganate	per cwt.	3	5
Prussiate Yellow	per lb.	0	0
Sulphate, 90 % (ex ship)	per ton	9	15
Muriate, 80 % (do.)	"	8	0
Silver (metal)	per oz.	0	3
Nitrate	"	0	2
Sodium (metal)	per lb.	0	3
Carb. (refined Soda-ash) 48 %	nett per ton	6	0
" (Caustic Soda-ash) 48 %	"	4	15
" (Carb. Soda-ash) 48 %	"	4	15
" (Carb. Soda-ash) 58 %	"	5	0
" (Soda Crystals)	"	3	0
Acetate (ex-ship)	"	16	15
Arseniate, 45 %	"	11	15
Chlorate	per lb.	0	0
Borate (Borax)	nett, per ton	29	0
Bichromate	per lb.	0	0
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10 10		
" (74 % Caustic Soda)	10 10		
" (70 % Caustic Soda)	9 10		
" (60 % Caustic Soda)	8 10		
" (60 % Caustic Soda, cream) (f.o.b.)	8 5		
Bicarbonate	"	6	10
Hypsulphite	"	7	10
Manganate, 30%	"	16	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9
Nitrite, 98 %	per ton	27	10
Phosphate	"	15	0
Prussiate	per lb.	0	0
Silicate (glass)	per ton	5	7
" (liquid, 100° Tw.)	"	4	5
Stannate, 40 %	per cwt.	3	5
Sulphate (Salt-cake)	per ton	1	4
" (Glauber's Salts)	"	1	10
Sulphide	"	8	10
Sulphite	"	6	12
Strontium Hydrate, 100%	"	8	10
Sulphocyanide Ammonium, 95 %	per lb.	0	0
Barium, 95 %	"	0	0
Potassium	"	0	0
Sulphur (Flowers)	per ton	8	0
(Roll Brimstone)	"	6	10
Brimstone: Best Quality	"	4	2
Superphosphate of Lime (26 %)	"	2	7
Tallow	"	32	0
Tin (English Ingots)	"	96	0
Crystals	per lb.	0	0
Zinc (Spelter)	per ton	18	2
Chloride (solution, 96° Tw.)	"	5	15

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SATURDAY, MAY 13, 1893.

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Notices.

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Essays, reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

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PERSUASION OR COMPULSION?

WE have always been of the opinion that more can be done by force of persuasion and tolerance than by coercion and bigotry; but at the same time we must not lay ourselves open to misapprehension by letting it be thought that we do not acknowledge the necessity of occasionally hitting out straight, the only thing we advocate being to hit hard enough when it comes to the hitting stage.

It would, as perhaps many of our readers know from personal experience, never do to report in full all that takes place at a public meeting, as sometimes in the heat of argument things are said which would not read well in the subsequent light of cooler and calmer reflection; but from our remarks of last week it is pretty patent that we are by no means in love with the proposals set forth in the report of the Censors of the Institute of Chemistry.

Still we would give even the devil his due, and since the Council of the Institute has at last begun to do something for the Fellows, we were desirous that in our report the intentions of the Council should appear in as favourable a light as possible, leaving till later the expression of views other than those of the Council. As a matter of fact we think that, judging from the manner in which the Council have bestirred themselves, they *have* begun to "do for" the Fellows.

There are, we suppose, black sheep in every flock, and we for one say let them be removed. Again, there are practices in vogue which tend to lower the *status* of the analytical chemist, in regard to which let palliative precautions be taken by all means, only let the sauce for the goose be likewise the sauce for the gander.

By eliminating the personal equation as far as possible in our report of the proceedings of the last extraordinary general meeting of the Institute of Chemistry, we have not, in the opinion of some of our readers, given sufficient prominence to the opinions of those who are prone to criticise adversely the code drawn up by the Censors; but those who have asked us to supplement our report by publishing the contributions they kindly sent have only anticipated our intentions. Those who spoke at the meeting against the proposals of the Censors expressed, we think, the feelings of a large number of those for whom the Institute was primarily incorporated, namely, analytical chemists, and we fully intended giving voice to the "cons" as well as the "pros," though in our desire to obtain a fair hearing for all, we thought fit to take the "pros" first.

Analytical chemists had two excellent champions in Messrs. Hehner and Allen, whose remarks on the proposed code of "offences" were to the point, and showed up some of the injustices which lurked in the proposals. Mr. Hehner did not fail to perceive that the code was one-sided and aimed at analytical chemists more than other sections of the profession, and, further, he did not hesitate in calling attention to the fact.

With regard to the latter portion of clause 5, as the same speaker said, it resolves itself into some humble aspirant in the profession being "quashed" for giving an opinion on a white lead, while a professor of eminence was at liberty to give a glowing account of any new process, for sewage treatment or the like. If there is need for evidence in support of this view we would recommend those interested to read the statements recently made by a chemist of repute, enjoying the distinction of being a university professor, upon gas, on behalf of a certain gas company, and use their own discretion as to whether the information there given does not come under the heading of "exaggerated, irrelevant, and laudatory expressions," which it would hardly have been discreet for an analyst of small repute to have given expression to.

The other gentleman we mentioned at the outset as speaking on behalf of the analytical chemist proper was equally poignant in his remarks, which almost involuntarily led one to suppose that he wished to politely advise the would-be reformers to remember that people who live in glass houses should—well, not use anything hard as missiles. We are evidently not alone in thinking the Censors are getting rather too energetic all at once, and are likely to injure, rather than protect, the analytical chemist, for Mr. Allen reminded the Council that if the Clauses were to be carried out literally the Institute was, after all, only a voluntary one, and it would be only natural to find a great many members leaving the Institute. Very justly did he also point out that if circulars and magazines as advertising mediums are to be condemned, so must also the other means which exist, such as Thorpe's "Dictionary of Applied Chemistry," Frankland's "Water Analysis." Then there are the calendars of colleges and lecture syllabuses, which give gratuitous advertisements to professors which analytical chemists cannot get. It is not fair to refuse to consider this as advertising; because, as the speaker said, it is advertising for pupils to put money in the pockets of the lecturers. He had read a syllabus issued by a college in the Midlands, in which it was stated that the lecturer would give special attention to medical and pharmaceutical students; and he must add, with all due respect, that the lecturer was their worthy president.

After all, this is only what the analytical chemist pure and simple does. He quietly informs the public that he will give special attention to the requirements of such and such people. Whether the one can be divided from the other, or not, by the distinction that one is an advertisement, because it appeared in a magazine, and the other "not of that ilk," since it appeared in a syllabus only, still the primary object and the net result is identical—specie.

Taking all things into consideration, therefore, it will now possibly no longer appear an unfathomable mystery why the motion of Mr. Friswell to postpone the second resolution—"That, in the opinion of this meeting, the Council will be justified in regarding these acts as offences of the kind referred to in the Charter (Chap. xvi. 3)"—was carried, and the matter held over till a meeting should be called in the future to deal with the question. Reviewing the general position of affairs, we feel disposed to say, till then so well and good.

THE COST OF A GAS EXPLOSION.—The gas explosion at Blackburn, which caused the destruction of the Crown Hotel and an adjoining shop and the loss of five lives, has involved the Corporation of the town in a heavy expenditure owing to a decision which saddled them with the responsibility for the disaster. A sum of £14,000. has had to be paid in compensation, and to meet which the Town Council yesterday resolved to raise the price of gas for the next five years by 3d. per 1,000 feet.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

ON Friday, May 5th, the last meeting of this section was held at the Victoria Hotel, at 7 p.m., Ivan Levinstein, Esq., in the chair. Owing to the fineness of the weather there was a rather attendance, only twenty members being present. Mr. F. R. Carp introduced a discussion on the evidence given by Professor Odling

THE INFLUENCE OF SULPHUR IN COAL GAS.

before the House of Lords Committee, on behalf of the Crystal Palace District Gas Co. The evidence tended to show that the amount of sulphur occurring in gas when burnt in an ordinary room was sufficient to do the damage which it is generally supposed to do.

These views were supported by Professor Vivian B. Lewes.

Mr. George E. Davis said that the harm produced by burning rich in sulphur in ordinary rooms was not a matter of opinion; it was a fact, as anyone could see for themselves by noticing the oily film which collects on gas globes, more particularly the bell-shaped tectors suspended over gas jets in halls, and such like places. He tested such liquids, and had in certain cases found as much as 70 per cent. of sulphuric acid, and the action of sulphuric acid on leather curtains, &c., was only too well-known. He referred to an experiment made before the society some years since by himself, showing the production in a Lux Calor stove, burning a gas rich in sulphur, of sulphuric anhydride in the leather bindings of some ledgers which had been on a high shelf in an office for many years, the nitrogen of the leather having been converted into ammonium sulphate, which was found in aqueous extract of the leather. He was surprised to hear that Professor Vivian B. Lewes had supported the statements of Professor Odling, which were most mischievous, because they were sent out to the world with a certain stamp of authority, and they would be continually up by people who wished to prove that the amount of sulphur in gas was in no way connected with the state of our health. He mentioned the report of the Censors of the Institute of Great Britain and Ireland, and pointed out that such cases had not been dealt with in the report.

Mr. Dreyfus spoke very strongly in support of the views of former speakers, and expressed his opinion that he did not think it right for a chemist to lend his name to such statements as were made by Professor Odling. Mr. Carpenter briefly informed the meeting that the evidence was not successful with the Committee of the House of Lords, the 20 grain limit on a weekly average being accepted by the promoters of the Bill, instead of the daily test.

A DISCUSSION ON SMOKE.

The Chairman then called on Mr. G. E. Davis to open the adjacent discussion on "Smoke." Mr. Davis spoke of the damage done by sulphurous acid in the atmosphere, and its influence on vegetation in general. He described some successful experiments he had been employing milk of lime for watering the grass under and around the boiler, which condensed the sulphur dioxide gas; the acid formed, dropping the leaves on to the ground beneath. He had found in the grass at the periphery of the circle formed by the branches of a weeping willow as much as 2 per cent. of free acid.

With regard to the means of preventing the smoke, as far as the manufacturers were concerned, a great deal could be done by having the boiler room. In Switzerland and Scotland they had almost smokeless chimneys, because they burnt the coal slowly. There were, however, in which it seemed almost impossible to prevent the emission of smoke; he referred to the firing of furnaces, which had to be done quickly, generally starting with cold surfaces.

The Chairman complained of the need for some better method of testing the quality of the smoke emitted. At present it was left to the opinion of the inspector to decide what was black smoke and what was not. After some further discussion, on the motion of Mr. Tenison, it was decided to devote a portion of several evenings during the next session to the discussion of this question, and confining the discussion to one aspect only.

Dr. Carl Otto Weber then read some "Further Notes on the Formation of Lake Pigments," which was a supplement to a paper read on this subject. He mentioned that some of the azo dyes, though apparently similar in composition, formed lakes with others did not. He gave an outline of the properties of the hydroxy and sulpho groups, and concluded from his work that the strength of acidity is no indication of the lake-forming powers of the dyes.

Mr. J. Carter Bell then read a short paper on the "Action of Chloride of Sulphur on Oils." Before proceeding to read the paper the author made a reference to his former paper on the

PREPARATION OF ALCOHOL FOR LABORATORY PURPOSES.

more particularly for the preparation of alcoholic potash. His experience recounted in his paper had been confirmed by Dr. Waller

America, who had sent him a letter with the following note on a method adopted by that gentleman, which was as follows:—A convenient amount of the alcohol to be purified is shaken with pulverized potassium permanganate until it assumes a decided colour. It is then allowed to stand for some hours, until the permanganate has been decomposed and brown manganese oxide is deposited. A pinch of pulverized calcium carbonate is then added, and the alcohol distilled at the rate of about 50 c. cm. in 20 minutes from a flask provided with a Wurcz tube or one of the Lebel-Heninger pattern. The distillate is tested frequently until about 10 c. cm. thereof, when boiled with 1 c. cm. of strong (syrupy) solution of caustic soda or potash, gives no perceptible yellow colouration on standing for 20 minutes or half an hour. What distils over after that time is preserved for use. Mr. Bell then proceeded with his paper. After giving an exhaustive list of results obtained with various oils, the author said: This chloride of sulphur test is well adapted for proving whether oleines contain a considerable quantity of unsaponifiable matter, in such cases the temperature rises very little. At the present time there are large quantities of oils, called oleines, which are supplied to the woollen manufacturers for what is called wool blending. Now, a good oleine from the best manufacturers only contains about 5% of unsaponifiable matter, and the temperature when mixed with chloride of sulphur is from 180° to nearly 200°, and therefore this is a test a manufacturer could make for himself in a few minutes. The following are a few samples of oil taken at random from a note book containing analyses of some 700 samples of various oils:—

	Temperature with Chloride of Sulphur.	
Oleine	90° F.	contained about 80% of unsaponifiable matter
Refined oleine	118° F.	" " 50% " "
Belgian oleine	178° F.	" " 10% " "
Price's oleine	200° F.	" " 5% " "
Black oil	104° F.	" " from 50% to 80% " "
" " " " "	106° F.	
" " " " "	95° F.	
Oilsperminal	98° F.	
Whale oil	194° F.	

The unsaponifiable matter due to mineral oil, and that unsaponifiable matter which is always found in a more or less degree in recovered oils, seems to have the greater effect in reducing the temperature of the mixture. This test cannot be applied to oils which become very thick and viscid, or solidify on mixing with the chloride of sulphur. Some objection may be taken to the use of chloride of sulphur because there may be some difficulty in obtaining it, but it is so easily made that any chemist can prepare it for himself. I have made many pounds by simply taking very dry flowers of sulphur, putting it into Woulff's bottles, and then passing very dry chlorine gas through. The sulphur is soon transformed into the chloride, which is in a liquid state in the bottle, and should contain an excess of sulphur. This is distilled from a glass retort, and comparatively pure chloride of sulphur distils over. A litre will last for many hundred experiments. It is well to test each new lot of chloride with some well-known standard oil.

Dr. Weber briefly spoke in preference of sulphuric acid as a good reagent as a substitute for the sulphur chloride. Mr. Davis mentioned the error introduced by the heat absorbed by the vessel in which the experiment was made, an error which militated considerably, he thought, against such tests.

Dr. Watson moved a vote of thanks to the chairman, Mr. Levinstein, for the excellent manner in which he had acted as chairman, which was heartily accorded by the members. Mr. Levinstein briefly replied, after which the meeting terminated.

SCOTTISH SECTION.

The closing meeting before the recess was held in the society's rooms, Glasgow, on Tuesday, May 2nd. After the minutes of the previous meeting had been read and confirmed, the chairman brought forward a matter which was not on the agenda paper, but which the committee thought ought not to be delayed any longer in its initiative. The annual general meeting of the society had not been held in Scotland since the year of the Glasgow International Exhibition, 1888. It had been deemed by the committee fitting and desirable that the annual meeting for 1894 should again be in Scotland after so considerable an interval as six years, and they had to propose this to the members of the section and take their voice on the matter. If approved, the committee would consider themselves empowered to present the invitation at the annual meeting of the present year, and further, to make the necessary arrangements in the event of the invitation being accepted. The motion that the society be invited to come to Scotland for next year's annual meeting was seconded by a member, with a rider to the effect that Edinburgh, and not Glasgow, should be selected as the place of meeting. There was no objection, and the proposal, as thus more particularly defined, was carried. The principal business on the card

was a paper on "The manufacture of india-rubber substitute," by Mr. Charles A. Fawsitt, but the chairman had regretfully to inform the meeting that Mr. Fawsitt had been attacked by a rather severe illness, which not only made it impossible for him to attend the meeting, but had prevented him from preparing the promised paper so far as to send it to be read by proxy. Under these circumstances Mr. R. T. Thomson proceeded to engage the meeting with some notes on certain new aspects of phenol phthalein. These were founded on a series of experiments into which he had entered, and they included several tables of figure results. The thanks of the meeting were awarded to Mr. Thomson. The attendance at this the closing meeting was very small. In consequence of an announcement at the April meeting that the sub-committee of the section had completed its report on the mineral oil flash-point movement, and that the document, in print, would soon be in the hands of members, it was expected by some that the paper itself would be forthcoming at the May meeting, being the last, or that some reference would be made to it. There was no reference made to the subject, however.

THE MANUFACTURE OF MAGNESIUM.

(Specially Contributed.)

THE manufacture of metallic magnesium in common with some of the rarer metals is not generally known in detail, although the chemical reactions upon which it is based are to be found in most metallurgical books dealing with the rarer metals. This is doubtless partly due to the fact that these details are kept secret, and also to the fact that the metal itself has only a limited application, and, in consequence, its manufacture is confined to a few firms. The process of manufacture is, to a certain extent, a tedious one, requiring careful and skilled manipulation.

Magnesium is one of the lightest metals known, its specific gravity being 1.74 compared with water. It is silver white in appearance, possessing great lustre; is malleable, and melts at a red heat, whilst, when more strongly heated in a non-oxidising atmosphere, it may be distilled easily, without oxidation. The freshly polished surface when exposed to the air gradually becomes dull, at the same time assuming a grey colour, owing to the formation of a thin layer of magnesia. This thin layer so completely covers the surface of the metal that it very effectually prevents further oxidation. When heated in the air it burns with a flame of great brilliance with formation of MgO. The light emitted by burning magnesium is so intense and rich in chemical rays that a detonating mixture of hydrogen and chlorine is easily exploded by its aid.

The industrial applications of metallic magnesium are almost wholly confined to pyrotechnics, and the production of the well-known "magnesium light," which is extensively used in photography in places where it is impossible to obtain sun light. In the preparation of fireworks, for pyrotechnical displays on land and for marine signalling, it is largely used. It does not find any place in the category of those metals used by metal workers, for the reason that it does not retain its polish for any length of time, as above stated. Even in the form of an alloy its use is very limited.

In the text books mention is made of various methods for manufacturing the metal, among the most prominent being the electrolytic process (which, however, as a matter of fact, is not used at all), and the method based on the reduction of magnesium chloride by an alkali metal, namely, sodium. By far the greater portion of the metallic magnesium industrially manufactured is made by this process. Within recent years it has been greatly cheapened, owing to the introduction and development of Castner's sodium process. The following is an outline of the method as it is carried out in practice:—

The chemical reactions involved are extremely simple, thus: $\text{MgCl}_2 + 2\text{Na} = \text{Mg} + 2\text{NaCl}$. This reaction takes place at a high temperature in the absence of water, and is usually carried out in small operations at a time. To facilitate the operation, a double chloride of magnesium and potassium is used, and the crude metal is subjected to a refining process consisting of simple distillation. It will, therefore, be convenient to divide the manufacture into three parts.

I. *Preparation of the double Chloride of Magnesium and Potassium.* Magnesite, or native carbonate of magnesium, is calcined at a red heat in a small furnace to expel the carbonic acid it contains, and the resulting magnesia, when withdrawn and cooled, is dissolved in a large stone trough in hydrochloric acid of sp. gravity 1.15 (30° Tw.). A slight excess of magnesia is used to neutralise the last traces of acid, and to precipitate any iron, alumina, etc., which the liquid contains. The liquid is not further diluted with water, but is allowed to remain at rest till all sedimentary matter has deposited. In another vessel a solution of chloride of potassium, having a sp. gravity of 1.165 (33° Tw.), is made by dissolving the best commercial "muriate" in water; and this is then clarified by settling or filtration by any of the usual methods. The two solutions are then mixed together in the following

proportions, viz.: 3 volumes of the chloride of magnesium, and 2 volumes of the muriate of potassium, and are cautiously boiled down in a cast-iron pot or boiler until the salts begin to separate or crystallize. The residue is then removed to a cast-iron crucible of moderate thickness and capacity, or a pot resembling an ordinary hand-nitre pot in size and shape, and fused in a suitable furnace at a red heat to expel every trace of water. The mixture of the chlorides forms a readily fusible mass, which, when in the molten state, is tapped or poured upon iron plates to solidify. The solid cake is then broken up before becoming cold, and carefully packed in air-tight vessels ready for use. Chloride of magnesium being a highly deliquescent salt, this is absolutely necessary to prevent it absorbing moisture from the air. The presence of water in the fused cake would cause an excessive consumption of the alkali metal. The double chloride prepared in this way has a brownish appearance and has substantially the formula $2\text{MgCl}_2 + \text{KCl}$.

(To be continued.)

THE ESTIMATION OF PARAFFINS IN ANTHRACENE.

By F. J. PYE (*Specialty Contributed*).

THE quantity of paraffins present in anthracene varies with the different kinds of tar from which the anthracene has been produced, and also with the subsequent treatment which it has undergone in the course of its purification.

The anthracene manufactured by tar distillers in the midlands contains from 0.005 to 0.10 per cent. of paraffin, and in its raw state, direct from the tar stills, averages 0.05 per cent.; more than this quantity is considered by buyers as excessive, and a reduction in price is claimed in consequence.

The Scotch anthracene, being for the most part obtained from shale, is usually rich in paraffin, containing from one to two per cent.; and one sample analysed by the author was found to have as much as 4.05 per cent.

The London anthracene, on the other hand, contains only a small percentage of paraffin, if any; and is seldom analysed for this impurity, unless there is reason to suspect an admixture of country or foreign anthracene.

The following is a table of analyses obtained by the author:—

No. of Sample.	Locality of Production.	Weight of Paraffin from 25 grammes of Anthracene.				per cent. of Paraffin.	Remarks.
		a	b	c	mean		
1	Midland	grams. 0.010	grams. 0.010	grams. 0.0085	grams. 0.0095	0.038	Yorkshire make (treated).
2	"	0.0185	0.019	0.019	0.0188	0.075	Yorkshire make (not treated).
3	"	0.010	0.010	0.012	0.0107	0.042	Lancs. make.
4	Scotch	0.225	0.225	0.225	*0.225	2.250	*Estimated on 10 grammes of Anthracene.
5	"	0.408	0.403	0.404	*0.405	4.05	*Ditto.
6	London	0.001	0.0025	0.001	0.0015	0.006	

The ordinary method of estimating paraffins in anthracene, as given in the last edition of Lunge's work on "Coal, Tar, and Ammonia," leads to very varying and unsatisfactory results; the method being far too crude to estimate to such a degree of accuracy as is now required by the users of this product; viz., to $\frac{1}{2000}$ per cent. The author, therefore, recommends the following method for the analysis of those anthracenes which do not contain more than 0.10% paraffin:—

An average sample of the anthracene having been drawn, it is well powdered and passed through a fine mesh sieve, and thoroughly mixed. Twenty-five grammes are taken and transferred in quantities of about one gramme at a time (well stirring with a glass rod after each transfer) to a porcelain dish containing 200 c.c. of concentrated sulphuric acid, previously heated to a temperature of 100°C ., which heat is maintained until all the anthracene has been added and is dissolved. The mixture is then poured into a separator containing 500 c.c. of water, which is well stirred and allowed to stand for from 10 to 15 minutes, in order that the paraffin may rise to the surface. Two-thirds of the solution are drawn off to get rid of any undissolved matter and all impurities, such as sand, etc., which will have settled at the bottom of the separator.

From 5 to 6 c.c. of benzene are added to the remainder of the solution left in the separator, which is then well shaken up, allowed to stand, and the acid solution drawn off, only leaving in the separator all the paraffin dissolved in the benzene. This is next washed three or four times with hot water, carefully separating the water after each washing. The solution is then drawn off into a tarred flask or dish,

and the separator rinsed with a further 4 c.c. of hot benzene, which is added to that already drawn off. The dish is next placed in a water oven, to evaporate off the benzene, care being taken that the temperature does not rise so high that the solution boils over the sides.

When all the benzene is evaporated, the dish is taken out, allowed to cool in a desiccator, and weighed. The weight multiplied by four gives the percentage of paraffin.

For those anthracenes which contain more than 0.10 per cent. paraffin, from 10 to 20 grammes only of anthracene should be taken (according to the quantity of paraffin presumed to be present), and about 10 c.c. of benzene used for dissolving the paraffins, instead of 5 c.c. Beyond these differences the process of analysis is similar to that just described.

THE ANALYSIS OF CREOSOTE.

THE process which is described below for the analysis of creosote depends on the following reactions:—Hydrobromic acid is able, under certain conditions, to turn out the methyl group from methyl esters of the phenols; the monohydric phenols are easily carried over with steam, whilst the polyhydric phenols are not. Ether takes the phenols from an aqueous solution, and by means of benzene it is possible to separate pyrocatechol and homopyrocatechol. The process is as follows: 100 grammes of the sample and 25 c.c. of water are introduced into a retort of a quarter of a litre capacity; hydrobromic acid gas is led to the mixture, which becomes red. The temperature rises, and methyl bromide is given off. The mixture is warmed slightly, but not sufficiently to allow it to boil. In an hour the whole of the methyl is driven off. The demethylated product is then poured into a larger retort, and distilled with a current of steam, until no oily liquid is carried over. The polyhydric phenols are left in the retort, which, when cool, are extracted with ether and the extracted phenols weighed. These are practically pyrocatechol and homopyrocatechol. By breaking the mass with its own weight of benzene, the pyrocatechol crystallizes out, leaving the homopyrocatechol in solution. The only correction considered necessary is to add 1.5 gr. of pyrocatechol per litre of water passing over in the distillation. It was found by experiment that this quantity was actually carried over. The weight of this phenol, multiplied by 1.127, gives the guaiacol present, whilst that of homopyrocatechol, multiplied by 1.12, gives the creosol. The monohydric phenols passing over with the steam are extracted from the aqueous liquid by means of ether, which is recovered from a water bath. The receiver is then changed and the last traces of water and ether driven off at 180° . A little phenol also passes over at the last. This can be poured off from the water and added to the remainder which is left in the distilling flask. There are the monohydric phenols, together with the small quantity of pyrocatechol carried over, which is deducted.—*Rep. de Pharm.*

RECENT CUSTOMS DECISIONS.

CADMIUM YELLOW.

IN the matter of the protest of the Roessler and Hasslacher Chemical Company, against the decision of the collector of customs at New York as to the rate and amount of duties chargeable on certain cadmium yellow, imported September 22 and October 10, 1892, the following is the opinion by General Appraiser Wilkinson:—

The merchandise is invoiced as, and is returned by the appraiser as, cadmium yellow. It was assessed for duty as a colour at 25 per cent., and is claimed to be exempt from duty as cadmium under paragraph 525, N. T.

We find that the merchandise is cadmium yellow. According to the "Century Dictionary," cadmium yellow is a pigment prepared by precipitating a solution of sulphate of cadmium with sulphuretted hydrogen, forming sulphide of cadmium. The article is, consequently, something more than the metal cadmium, and the protest is overruled.

MINERAL WHITE.

In the matter of the protest of John Bromley and Sons, against the decision of the collector of customs at Philadelphia as to the rate and amount of duties chargeable on certain mineral white, imported October 6, 1892, the following is the opinion by General Appraiser Wilkinson:—

The merchandise is a fine white powder, invoiced as "mineral white." It was assessed for duty at 20 per cent. under section 4, N. T., and is claimed to be dutiable at \$1 per ton, as plaster of paris, ground, under paragraph 97.

According to an analysis made by the United States laboratory at this port, the article is composed of corn starch, 7.10 per cent., and dihydrated calcium sulphate, 92.90 per cent.

We find upon this analysis that the merchandise is not plaster of paris ground, and the protest is overruled accordingly.

CHLORIDE OF MAGNESIUM.

In the matter of the protest of Eastwood and Company, against the decision of the collector of customs at Boston as to the rate and amount of duties chargeable on certain chloride of magnesium, imported October 18, 1892, the following is the opinion by General Appraiser Wilkinson:—

The appellants and the appraiser concur in the statement that the merchandise is chloride of magnesium. It was assessed for duty as a chemical salt, and is claimed to be exempt from duty either as magnesium, as muriate of potash, or as kieserite.

Magnesium differs from the article in question, being a metal obtained from magnesia; muriate of potash is distinct from chloride of magnesium, and kieserite is a saline mineral composed of monohydrated sulphate of magnesia in small microscopic needles.

We find that chloride of magnesium is a chemical salt, and hold that it is not provided for in the free list.

The protest is overruled accordingly.

THE GAS SUPPLY OF LONDON.

LONDON.

THE quality of the gas supplied to the City of London for the week ending April 22, 1893, was on the whole good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed only one deficiency in illuminating power, and that against the South Metropolitan Gas Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'49	11'07	0'24	Nil.
South Metropolitan Gas Co.	6	16'48	12'35	0'66	Nil.
Commercial Gas Co.	2	16'45	8'50	0'05	Nil.

The supply during the week ending April 29, 1893, was not so good, there being three deficiencies in illuminating power, all against the South Metropolitan Gas Co. The results calculated as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'50	10'70	0'30	Nil.
South Metropolitan Gas Co.	6	16'41	11'16	0'55	Nil.
Commercial Gas Co.	2	16'50	7'75	0'15	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

NATURAL AND ARTIFICIAL CEMENTS IN CANADA.

By H. P. BRUMELL.

IN the last report of the U. S. Geological Survey on the mineral resources of the United States, and under the heading of cement, particular stress is laid upon the fact that there has recently been discovered in California an extensive deposit of natural cement rock, and the fact of its importance to the State is spoken of at length. The knowledge that a good, yet cheap, cement is of importance to any district has led the writer to prepare the following brief statement regarding cements in Canada:—

We have in this country a practically illimitable store of materials applicable to the manufacture of natural and artificial hydraulic cements, of both of which we are now producing a considerable quantity, the production for 1891 being about 93,473 barrels of all kinds. Of this, however, the greater part was of natural cement, and the total production altogether that of the provinces of Ontario and Quebec.

Over a considerable portion of the Dominion are to be found the following materials, which are or may be used in the manufacture of cement:—Argillaceous and pure limestones, magnesian limestone, marl and clay. Of the limestones, probably the best known in Ontario is that constituting a band about eight feet thick and of Niagara age. This band is quarried along its exposure on the Niagara escarpment between Thorold and St. David in Lincoln county, and consists of a bluish gray argillaceous limestone overlying black bituminous shales. Again at Limehouse in Holton county, the Niagara affords a good cement rock. The band here is nine feet thick and rests upon eight feet of bluish shales. As may be supposed, the shales underlying the cement rock in both the foregoing instances form a very distinct quarry floor, thus minimising the danger of mixture with inferior rock. At Rynal station, Wentworth county, a similar cement rock is quarried. Many other bands of limestone and magnesian limestone in the Niagara formation in Ontario are known to possess hydraulic properties, though at present no other than those noted are being utilised.

Throughout the Onondaga formation, which is developed in Canada only in Ontario, are many beds of hydraulic cement rock, the best known being those of the Saugeen valley and vicinity and those in the neighbourhood of Paris. The lower beds of the Lower Helderberg (Waterline group) also afford impure magnesian limestone eminently suitable for the manufacture of cement.

In Eastern Ontario cement is made from an impure limestone found at Napanee Mills, in Addington county and in the township of Napaeon, Carleton county, there is developed a bed of argillaceous magnesian limestone of Chazy age, from which the so-called "Huce cement" is made. An analysis of the crude Nepean rock gave—

Carbonate lime	45'30
Carbonate magnesia	12'77
Alumina and iron oxide	12'52
Insoluble argillaceous residue	19'77
Water and loss	9'64
	100'00

In the province of Quebec natural cement is made in Quebec city from a bluish-black dolomite, and at the Mountain Portage, on the Magdalen River, Gaspé county, is found a black dolomite, which is said to possess strong hydraulic properties. A similar band has also been noticed on the Grande Conde, six miles below Great Pond River in the same county.

An analysis of the Magdalen River rock gave—

Carbonate lime	43'17
Carbonate magnesia	32'12
Alumina with iron oxide	4'10
Insoluble (fine clay)	20'30
	99'69

Many other bands of rock suitable for the manufacture of natural cement are known in Canada, but the foregoing is thought sufficient to illustrate their geographical and geological distribution.

For the making of Portland cement, suitable clays and marls or limestones are found at many places in that juxtaposition necessary for economical and profitable working, mention will therefore be made only of those points whereat works are situated. These are—Hull and Pt. Claire, in Quebec; Napanee Mills, Maribank; and Ocorn Sound, in Ontario. At Hull, Pointe Claire, and Napanee Mills clay and limestone are used, while at Maribank and Ocorn Sound the cement is produced from clay and marl, which occur in quantity, and of singular purity. Of the materials wherefrom the Ocorn Sound cement is produced the following analysis are available:—

MARL.

Carbonate of lime	96'41
Carbonate of magnesia	1'64
Carbonate of iron	0'42
Intermixed sand, clay, and organic material	1'16
Moisture	0'37
	100'00

CLAY, UNDERLYING MARL.

Moisture	1'42
Silica	62'26
Alumina	14'70
Ferric Oxide	3'22
Lime	5'28
Magnesia	0'63
Carbon dioxide	10'09
Potassium oxide	2'64
Sodium oxide (2'0%)	
	100'24

Of the various manufactured natural cements, the following analyses only are at hand :—

	I.	II.	III.	IV.
Lime.....	53.55	43.05	39.70	52.49
Magnesia	2.20	18.02	9.58	Tr's
Silica	29.88	28.43	....	27.40
Alumina and iron oxide.....	12.70	10.50	19.74	12.16
Insoluble argillaceous residue .....	....	....	30.98	....
Sulphate lime	1.58	....	....	7.95
	99.91	100.00	100.00	100.00

As to the relative qualities and tensile strength of the various Canadian cements, it has been thought best to say nothing, as "comparisons are odious." Much information and many schedules of testing operations may, however, be found in recent reports of the city engineers of Toronto and Montreal. In these reports the various Canadian brands are shown in comparison with most of the prominent European and American natural and artificial cements.

THE NATIVE SODA DEPOSITS OF WYOMING.

A PAPER on these deposits has been read by Messrs. Pemberton and Tucker before the Chemical section of the Franklin Institute. Referring to the deposits they say: About fourteen miles south west of Laramie, near Wyoming, there exist deposits of sodium sulphate, such deposits being known locally as "lakes." The deposit in question is composed of three of these lakes lying within a stone's throw of one another. They have a total area of about sixty-five acres, the local names of the three being the Big Lake, the Track Lake and the Red Lake. They are the property of the Union Pacific Railroad Company, are connected by a branch of that road with the main line at Laramie, and are generally known as the Union Pacific Lakes.

In these lakes the sulphate of soda occurs in two bodies or layers. The lower part constituting the great bulk of the deposit, is a mass of crystals of a faint greenish colour, mixed with a considerable amount of black slimy mud. It is known as the "solid soda." We give an analysis of this below.

ANALYSIS OF SOLID SODA IMMEDIATELY UNDER THE TOP LAYER OF WHITE SULPHATE OF SODA ON RED LAKE AND TRACK LAKE (U. P. LAKES).

	Anhydrous. Per Cent.	Crystallised. Per Cent.
Na ₂ SO ₄	36.00	81.63
CaSO ₄	1.45	1.82
MgCl ₂	.77	1.64
NaCl,	.21	.21
	38.43	85.30
Insoluble residue (at 100°C.),....		13.86
		99.16

This solid soda is stated to have a depth of some twenty or thirty feet. Borings were made a number of years ago under the direction of the Union Pacific Railroad agents, but all attempts to obtain the results of the same were futile, as the records have been mislaid or lost. There is nothing to prove that the depth is not shallower than stated above.

Above the solid soda occurs the superficial layer of *pure white crystallized sulphate of soda*. This is formed by solution in water of the upper part of the lower body—the crystals being deposited by evaporation or by cooling, or by the two combined. A little rain in the spring and autumn furnishes this water, as do also innumerable small, sluggishly flowing springs present in all the lakes. But on account of the dry air of this arid region, the surface is generally dry or nearly so, and in midsummer the white clouds of efflorescent sulphate that are whirled up by the everblowing winds of Wyoming can be seen for miles. Even should there be a little water present, there is no difficulty in gathering the crystals by the train load. The spring, however, is the worst season of the year, on account of the warm weather and of the rains—conditions unfavourable to the formation of crystals. The layer of this white sulphate is from three to twelve inches in thickness. When the crystals are removed, the part laid bare is soon replenished by a new crop.

The following is an analysis of the purest of this white sulphate of soda, calculated upon an anhydrous basis; that being the condition, of course, in which it would be used.

Na ₂ SO ₄	99.73
MgCl ₂	.26
Insoluble,	trace
	99.99

Several hundred tons of this have been shipped by the railroad to the works at Laramie city. The plant there for dehydrating the crystals is not of the best, and the long exposure to the dust and smoke of the fire gases in the evaporation—and again in the calcining—introduces more or less impurity into the finished calcined sulphate of soda. The following is an analysis of the latter:

	Finished Calcined Sulphate of Soda. (From U. P. Lakes.)	
Na ₂ SO ₄	95.80	soluble in water.
CaSO ₄	.76	
NaCl	1.84	
Ignition,	.19	
SiO ₂	1.48	insoluble in water.
Fe ₂ O ₃	.06	
Al ₂ O ₃	.31	
CaO	.20	
MgO	.44	
	101.08	

This analysis represents the general run of the sulphate, as manufactured in Laramie. The sample was taken from a carload lot sold to the Wyoming Glass Company. It contains only a trace of iron, and, of course, no free acid.

At the time when we examined these lakes, in 1888, they were entirely under water. An irrigating canal—or "ditch"—had been located within a half mile of them, the water from which had gradually collected to the extent of several feet in the lakes. The course of the canal has since been changed, and the lakes are again in about their normal condition.

Samples of this water were collected by us, and analyzed as giving a very fair idea of the average composition of the deposits. The ingredients are calculated to the anhydrous condition. The last item, it will be noticed, is given as anhydrous borax, Na₂B₄O₇. It represents the results of titration with standard acid, using methyl orange as an indicator. It may be noted that, on account of the lime salts present in solution, alkaline carbonates and phosphates must be absent, and direct test proved the absence of soluble silicates. We have noticed the same titration reaction (if we may so call it) in a sample of sulphate of soda from a deposit near Rawlins, Wyoming, and, in general, it may be stated that the character of the climate, soil, and formation of Wyoming is very similar to that of such parts of the Pacific Slope as are known to contain deposits of borax.

WATER FROM BIG LAKE (U. P. LAKES).

Density = 94° Tw. (= 1.0487 sp. gr.)

10 c.c. contains:

	Grams.	Per Cent.
Na ₂ SO ₄	0.4490	81.43
CaSO ₄	0.0175	3.17
MgSO ₄	0.0060	1.09
MgCl ₂	0.0643	11.66
Na ₂ B ₄ O ₇ ?	0.0147	2.65

Total solids,

(Total solids by evaporation,)

One cubic foot contains 6.460 pounds of pure crystallized sulphate of soda.

WATER FROM TRACK LAKE (U. P. LAKES).

Density = 14½° Tw. (= 1.0725 sp. gr.)

10 c.c. contains:

	Grams.	Per Cent.
Na ₂ SO ₄	0.7563	92.23
CaSO ₄	0.0146	1.79
MgSO ₄	0.0070	.85
MgCl ₂	0.0300	3.66
Na ₂ B ₄ O ₇ ?	0.0121	1.47

Total solids,

Total solids by evaporation,

One cubic foot of this water contains 10.180 pounds of pure crystallized sulphate of soda.

WATER FROM RED LAKE (U. P. LAKES).

Density = 17¾° Tw. (= 1.0887 sp. gr.)

10 c.c. contains:

	Grams.	Per Cent.
Na ₂ SO ₄	0.9307	91.77
CaSO ₄	0.0201	1.98
MgSO ₄	0.0143	1.41
MgCl ₂	0.0416	4.10
Na ₂ B ₄ O ₇ ?	0.0075	.74

Total solids,

Total solids by evaporation,

One cubic foot of this water contains $13\frac{13}{100}$ pounds of pure crystallised sulphate of soda.

We give, also, below analysis of sulphate of soda from lakes controlled by Col. S. W. Downey, of Laramie. Of these deposits we know but little other than that they are situated about twenty-five miles south-west of Laramie, and as indicated by the analysis, are contaminated by lime and magnesia salts to a considerable degree. Both analysis were made on samples previously calcined.

	S. W. Downey's Wilcox Lake.	S. W. Downey's Red Soda.
Na_2SO_4	43.12	69.55
MgSO_4	4.170	6.75
CaSO_4	—	11.24
NaCl	.20	1.01
Ignition,	.32	.33
Insoluble,	16.15	10.50
	101.49	99.38

From a commercial standpoint these Wyoming deposits are interesting, inasmuch as they furnish cheaply and in large quantities quite a pure grade of sulphate of soda. This sulphate being free from iron, and also, of course, from free acid, is well adapted to use in the manufacture of glass. Freight rates from the East are in its favour and allow a price that should yield a fair profit. Attempts have been made at Laramie on quite an elaborate scale, to manufacture soda ash and caustic by the Leblanc process. These efforts were not remunerative.

Parliamentary Gossipings.

POLLUTION OF RIVERS.

In the Standing Committee of the Peers on Tuesday this week, the Rivers Pollution Bill, introduced by Lord Monkswell was taken up. The following is the operative part of the measure, and it was passed without amendment:—

"Where any sewage matter falls, or flows, or is carried into any stream after passing through or along a channel which is vested in a sanitary authority, the sanitary authority shall, for the purposes of section 3 of the Rivers Pollution Prevention Act, 1876, be deemed to knowingly permit the sewage matter so to fall, flow, or be carried."

The bill was ordered to be reported.

Correspondence.

. We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

W.H.—Thanks for letter.

A. P. Co., Ltd.—We are obliged for your attention in the matter.

J.H.B.—The alteration has been made, and we thank you for your notification.

J.H.—It does not exist. If it does it is a very insignificant one.

T. T. & Son.—We do not think it would be of any use.

G.H.—We beg to acknowledge your last letter. We trust you found the information answered your purpose.

R.C.M.—Many thanks for report. We hope we shall receive the same in future when occasion presents itself.

H.E.—Your query will appear in our next issue.

VERAX.—Yes, it has been settled. July 12, 13, and 14 are the dates fixed upon.

Trade Notes.

A DESTRUCTIVE FIRE.—Recently a fire broke out at the Thorncliffe colliery of Messrs. Newton, Chambers and Co., but was extinguished after damage amounting to about £1,500. had been done.

THE PRODUCTION OF KAOLIN IN CAROLINA.—The total production of prepared kaolin in North Carolina in 1892 is estimated at 3,900 net tons, valued at £6,240 at the works. The principal producers were the mines at Sylva and Dillsboro in Jackson county.

TECHNICAL SCHOOL FOR WIDNES.—On Tuesday last the Widnes Town Council authorised the expenditure of £10,765. in erecting a technical school, to include the free library, according to the plans of Messrs. Woodhouse and Willoughby, architects, of Manchester. The original estimation was £6,000.

PERSONAL.—In connection with the opening of the Imperial Institute on Wednesday last, the Queen made Lord Herschell (Lord Chancellor),

who is chairman of the Organising Committee, an extra Grand Cross of the Bath; gave a baronetcy to Sir Frederick Abel, K.C.B., and has made Sir Somers Vane a Commander of the Order of St. Michael and St. George.

THE BERLIN CHEMICAL TRADE.—The returns of the Griesheim Chemical Works show a profit of £56,993., as against £52,403. in 1891. A dividend of 16 per cent. has been declared. A dividend of 10 per cent. and 3 per cent. has been declared by the Chemical Products Co., Pommerensdorf, and the Ascania Chemical Co., Leopoldshall, respectively. According to a recent report, it has been proposed to start a new aluminium works in Voigtland, at Lengefeld.

THE BOROUGH ARMS OF WIDNES.—The Widnes Town Council has approved of the design for the Borough Arms as prepared by the officers of the College of Arms. The coat of arms is divided into four quarters, in two of which there is a hive with bees, and in the remaining two quarters the red rose of Lancaster, taken from the arms of Henry VII. The crest is an alembic, which has been chosen as the most primitive and yet historic form of chemical research. The soda crystal has been selected as the emblem for the Mayoral chain.

THE BROXBURN OIL CO.—This company, after paying interest on borrowed money and providing for maintenance of works and all current charges, and including £3,379. brought forward from the previous year, has a balance of £12,708. The directors recommend that £12,269. be written off as depreciation on capital expenditure, being at the rate of 5 per cent., and that the balance of £439. be carried forward to the current year. They further recommend that the dividend on the 6 per cent. preference shares, amounting to £6,000. be paid out of the reserve fund. This is the first time the company has failed to pay dividend on ordinary shares.

VISIT OF THE OWENS COLLEGE STUDENTS TO WIDNES.—The annual excursion of the Owens College technology students to Widnes took place on Thursday last week. The students had an instructive and enjoyable outing, the party being in charge of Dr. Bailey. Owing to the courtesy of the managers of the various works the students were enabled to see the following processes at work:—The Le Blanc soda process, including the decomposing, balling, lixiviating, boiling down; the finishing of the soda ash; the production of soda crystals, the manufacture of caustic soda and treatment of the red liquors, the Hargreaves' salt cake process, the Weldon chlorine and manganese recovery processes, the manufacture of bleaching powder, and the Chance-Claus sulphur recovery process.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The Tar products market is in a most desperate condition, which cannot be wondered at when 90's benzol is only value for 1s. 4d., and is level with 50/90's in this respect, when pitch is at 23s. f.o.b., and creosote at less than ½d. per gallon, and when tar oils from blast furnaces and coke ovens can be purchased for a trifle over ¼d. per gallon at the works, and when a few trucks of this commodity as a sample are considered of no value.

The sulphate of ammonia market has become quiet also, consumers having apparently received friendly advice from dealers that prices must inevitably come down, and that they cannot do better than wait. How far such an anticipation can possibly be realised must be left to those who furnish such counsel to explain, and when it is understood that stocks do not exist anywhere, a decline is not feasible unless purchasers' requirements can be postponed *sine die*. East coast quotations are about £11. 15s. 0d.; sales at Liverpool are still being made at £12. to £12. 2s. 6d., and while Beckton is nominally £12., business has been done in outside makes at £11. 15s.

REPORT ON MANURE MATERIAL.

The continued dry weather has somewhat checked purchasing, but throughout the week there has been a fair business passing at an advance for phosphates and at some decline in prices for ammoniacal material.

The nearest value of 75/80% Florida phosphate rock, in cargoes c.i.f., United Kingdom, is 8¼d., 1893 shipment, whilst for 1894 8½d. is asked, and 8¾d. for 1895. For the continent about ¼d. per unit more is required. For hot-air-dried South Carolina River rock 7d. per unit is now lowest, 1893 shipment, and for Peace River Rock about ½d. more is asked.

There is good enquiry for due cargoes of River Plate Bones, and £4. 5s. would probably be paid for any of handy size; for cargoes more distant £4. 2s. 6d. to £4. 3s. 9d. is nearest value; and for shipment sellers look for £4. 5s. delivered safe, port United Kingdom

or continent. £4. 5s. now required for East India crushed bones, Autumn shipment, and £4. 10s. is lowest spot price. On spot bone meal is very scarce and cannot be quoted under £4. 17s. 6d. to £5., according to quality. For Autumn shipment £4. 7s. 6d. would probably be business for fair average quality, Bombay. Common grinding bones are also scarce and enquired for, and good clean parcels arriving would fetch £4. 5s. ex quay Liverpool.

There has been a further decline in nitrate of soda, owing to the arrivals and the anxiety not to hold stocks over for next season. Ordinary 5% refraction may now be had at 9s. ex quay Liverpool, and refined at 9s. 3d. per cwt. April sailings are worth about 8s. 4½d. per cwt.

Dried blood is again easier, and 9s. 6d. per unit, ex quay Liverpool, accepted for a parcel of rough River Plate. Home prepared is worth 9s. 9d. to 11s. per unit, free rails, according to quality and relation of works to shipping port.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are fairly steady, bleach in particular being firm at £8. 5s. Softwoods. The heavy shipments last week to Russia having reduced stocks to a minimum. Soda crystals £2. 10s. locally, less at special ports. Sulphur in fair enquiry, the present low price attracting buyers for the "pure" article.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. 8s. per ton, 52%, £4. 15s. per ton, 56%, £5. 2s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham Salt unchanged at 9s. 1d. per ton, f.o.b. Tees.

Coals: Trade is steady, as far as best Northumbrian steam are concerned. Prices are as under: Best Northumbrian steam, 8s. 9d. per ton; second qualities, 8s. per ton; small steam, 3s. 6d. and 4s. per ton; bunker coals depressed, price varies from 6s. per ton for unscreened to 8s. 6d. per ton for best Durham screened; household and manufacturing coals, dull; gas coals in limited demand, at 6s. and 6s. 6d. per ton; coke, steady at 13s. 6d. per ton, with heavy shipments at present.

THE METAL MARKETS.

LONDON, TUESDAY.—Pig iron quiet. Scotch warrants closed at 40s. 6d. cash. Copper: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 1s. 3d. cash, and £44. 10s. to £44. 11s. 3d. three months. Tin quiet: Straits closed at £92. 5s. cash and £87. 10s. three months. English ingots, £95. Lead: Spanish, £9. 13s. 9d. to £9. 15s. English, £9. 17s. 6d. to £10. Silesian spelter: Ordinary, £17. 15s. to £17. 17s. 6d. Nickel, 1s. 8½d. per lb. Antimony, £42. Quicksilver: First hands, £6. 15s., second hands, £6. 13s. 6d. Copper shares quiet: Cape, 1⅞ to 1⅞. Copiapo, 2½ to 2¼. Libiola, 3 to 3¼. Mason and Barry, 2⅞ to 2⅞. Rio Tinto, 15⅞ to 15⅞. Tharsis, 4⅞ to 4⅞. Namaqua, 1 to 1¼. Panulcillo, ⅞ to ⅞.

WOLVERHAMPTON, WEDNESDAY.—Ironmasters are again full of the financial news from Australia. The further failure announced to-day has created much disquiet, and the question is anxiously asked, "Where is the situation to end?" The finances of some of the local firms are suffering severely. Meantime prices are depressed, and it is difficult for ironmasters to know what to do. Sheets, doubles, £6. 15s. to £7.; galvanised sheets, £10. 15s. to £11. 10s., Liverpool; best bars, £7. 10s.; and common bars, £5. 10s.; pigs tame, prices unimproved.

GLASGOW, WEDNESDAY.—Market steady, with good business. Scotch done at 40s. 6½d. 40s. 7d., and 40s. 6½d. cash, also at 40s. 9d. and 40s. 9½d. one month; closing with buyers at 40s. 6d. cash, and 40s. 8½d. one month. Sellers ask 40s. 6½d. cash and 40s. 9½d. one month. Middlesbrough done at 33s. 8½d. and 33s. 9d. cash, closes with buyers at 33s. 9d. cash and 33s. 11d. one month,

sellers ask 1d. more. Hematite closes with buyers at 44s. 7½d. sellers ask 44s. 9½d.

MISCELLANEOUS CHEMICAL MARKET

Business generally continues somewhat dull, and there is not importance to report. Prices on the whole remain the same. Ing powder is still in good request at £8. for prompt, and £7.1 forward contracts; rails makers' works. Caustic soda quotations are:—f.o.b. Tyne, 77% £11.; f.o.b., Liverpool, 74% £11. 70% £9. 10s.; 60% £8. 10s.; cream 60% £8. 5s., to 10s. upwards. The demand for soda ash is in want of improvement. Crystals in slightly better request at £2. 13s. bags, and £3.2 barrels, rails, makers' works. Saltcake difficult to move. Chlorate of Potash quoted by makers, 9d., but resale lots are offering at Chlorate of soda is sold out until July. Sulphate of copper at price £16. 10s. f.o.b. Litharge depressed and price at £13. Foreign white sugar of lead £26. c i f. Nitrate weak; £20. principal centres of consumption is about full value. Acetate has slightly declined and there is more offering. White arsenic remains very firm at £13. 17s. 6d. to £14. at Ganton; ing to brand, stocks are light. Prussiate of potash quiet. Tin crystals move slowly at 6½d. to 6¼d. delivered. Oil still at 3d. and shows no sign of advance. Sulphocyanide Barium 5d., ammonium 7d. Bichromates steady and sales satisfactory, prices are 3¼d. for soda and 4½d. potash.

LIVERPOOL OIL AND COLOUR MARKET

WEDNESDAY.

OILS.—Palm oil is firm and the demand is fairly good, a considerable quantity of Lagos having been sold at £24. 5s. to £24. 10s. transit though in small parcels. Olive is quiet with a demand, prices are unaltered. Linseed is firm for Liverpool export casks at 20s. 6d. to 21s. 6d. Rape: Refined Steffens unchanged for 29s. per cwt. Cottonseed has improved at Liverpool refined being 22s. 6d. to 24s. 6d. per cwt. Castor steady, good seconds Calcutta being firmly held at 2¼d. pressure French 2⅞d. to 2½d. per lb. Tallow is firm with a demand to hardened prices for good quality North American. Resins: Turpentine maintain their firmness, and 24s. 3d. per cwt. is quotation. Petroleum is in poor demand, but prices remain: 6d. for American, 4½d. to 4¼d. Russian.

COLOURS steady. Ochres: Oxfordshire, common, £10. 12s., best, £15.; Derbyshire, common, 40s.; medium, 50s., Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Dev 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Turkish quiet. Devonshire, 50s. to 55s. White lead, red oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium finest, £20. Zinc oxide, £20. to £25.

HULL PAINT, OIL, AND COLOUR REPORT

OILS.—There has been no change in the position of affairs the past week, this block to all business is affecting adverse situation both for present and future trade; as much good being diverted to other continental ports, which state of affairs much to be deplored.

Some buyers here of rape oil are anticipating a change, shortly, owing to shortness of stocks of seed, but for the present are without change and steady. Olive oil is not too plentiful quotations are without alteration. Linseed oil is scarce, spot forward, 19s. 3d. May-August; 18s. 3d. last four months. steady; spot, naked, 19s. 9d.; forward, 20s. 3d. May-August 18s. 7½d. per cwt. Turpentine, 23s. 6d.; petroleum jelly, 18s.

CAKES.—The prices ruling are linseed cakes, 95 per cwt. £9. 5s. to £9. 10s. per ton; ordinary, £7. 10s.; Polish, £8. Russians, £8. 15s. to £9.; cotton cakes, best makers, £5. 11 quality, £5. to £5. 5s., all kinds of cakes are exceedingly at.

PAINTS.—Trade in these articles is exceedingly good, as fine weather continues, this state of things no doubt will prevail. There are no alteration in prices which are: white £6. to £10. per ton; oxide of iron, £9. to £18. per ton; ochre, 65s. per ton; fine linseed oil putty, £6.; ready mixed tins of 1 lb. to 14 lb., 28s. to 30s. per cwt.

THE LIVERPOOL MINERAL MARKET.

Mineral market continues to improve. Manganese: Only one report, which has not affected the tone of the market, which is. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. chloride, £15.; carbonate, £12. 10s., steady. Magnesite quiet, with probability of a further decline; raw ground, and calcined £12. 10s. Bauxite (Irish Hill brand) very full prices: lump 20s., seconds 16s., thirds 12s. French demand for "Angel White" brand is even greater week, and shipments still slow. Barytes: Carbonate lumps, 72s. 6d. to 85s.; finest white sulphate is in demand. "White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. one quiet. Iron ore flat, Bilbao, Irish, and Cumberland antander and manganiferous are quiet. Emerystone firm; lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. earth steady; best lump, 55s.; fine impalpable ground, Emerald" ground, 80s. Scheelite, wolfram, tungstate of tungsten metal are firm. Chrome ore, best qualities are in demand, at full prices. Antimony ore easier at £11. 10s., £14.3. to £45. Asbestos firm. Potters' lead ore, smalls, £11. Calamine strontia sulphate (celestine) quiet, steady, especially for English manufactured; old G.G.B. demand at 50s. (ground). Felspar quiet. Fluorspar: lity scarce. Ferro-manganese improving. Plumbago: £5.; best Ceylon lump at last quotations; Italian and £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's inc., £10. French sand, 20s. to 22s. 6d. Ground mica, £50. China clay steady, common, 18s. 6d.; good medium, to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide) scarce; finest quality 25s. to 30s.

THE COPPER MARKET.

Harrington and Co., in their fortnightly report, dated May 2nd, state:—
For the past fortnight are cabled as 1,100 tons, against 500 tons the previous fortnight, making 1,600 tons for the month. The 31st December is 6,250 tons. Same time last year the was 7,200 tons. Exchange 15½d.
The past fortnight about 6,500 tons of G.O.B.'s and G.M.B.'s; the highest price being £44. 17s. 6d. cash and £45. 5s. 10s., the lowest £44. 6s. 3d. and £44. 15s. respectively. On 15s. there was very strong "Bear" selling of forward G.M.B.'s, pressed the market, and we close to-day at £44. 7s. 6d. cash 16s. 3d. three months. As suitable furnace material is in demand, and 9s. 7½d. per unit has been the copper contained in Argentiferous Montana Matte.
The stocks in Liverpool, Swansea, London, and Havre show a decrease of 129 tons for the fortnight, which, with a decrease of 2,098 tons the previous fortnight, makes the total decrease 2,227 tons for the month. The stocks include about 1,350 tons of copper sold, but delivered to smelters. The visible supply shows a decrease of 3,115 tons for the fortnight, which, with a decrease of 2,387 tons for the month, makes a total decrease of 3,115 tons for the month. Deliveries for the fortnight are 4,859 tons, which, with 4,837 tons the previous fortnight, makes a total of 9,696 tons for the month. The present stock of English G.M.B.'s in warehouse, Liverpool, Swansea, is 279 tons, against 304 tons on the 16th ult. The stock in Liverpool and Swansea was 25 tons, making a decrease of 25 tons for the fortnight. Refined and manufactured sorts are steady, quotations being:—Tough cake, £47. 10s. to £48.; Indian sheets, £52. 10s.; strong sheets, £49. 10s.; yellow metal sheets, 43½d. per lb.
The stocks of furnace material comprise—260 tons ordinary Boston Matte, at 9s. 1d. per unit; 1,200 tons Argentiferous Montana Matte, on private terms; 100 tons Portuguese ore, to arrive, at 8s. 6d.; 250 tons Tilt Cove ore, to arrive, Swansea, at 8s. 6d.; 117 tons can ore, at 8s. 9d.; and 45 tons Portuguese precipitate, at 8s. 9d. per unit.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Mineral oil and paraffin section of this market the tone is more depressed, and prices incline to the fall, there being little anything passing just at this time, which is the quietest of the burning products. A second of the Mineral Oil Company just declared financial results for the year, and, as in the there is nothing for the shareholders, although the company has yielded very respectable dividends.

The sulphate of ammonia market has continued lowering, but at no very violent rate, and the prompt price is now at from £11. 10s. to £11. 12s. 6d. Forward has been spoken of at £11. 5s., but no sale at this money has, as yet, been more than vaguely reported, and this indicates some certain reserve of firmness at least. Probably £11. 7s. 6d. is the lowest at which buyers could make forward business to-day.

With one exception only, the general chemicals market is very dull, and prices in one or two cases have given way, chlorate of potash having receded a farthing, and nitrate of soda dropped sixpence. The strong exception is bleaching powder, as hitherto, which retains its old price of £8. 5s., and is in increased request, with shipments on a larger scale. Dye chemicals were disturbed by the Dundee textile disputes, but these have, happily, been arranged.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; saltcake, 24s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% Liverpool; nitrate of soda, 9s. 9d.; sulphate of ammonia, £11. 10s. to £11. 12s. 6d. f.o.b. Leith; salammmoniac, first and second white, £35. and £33., less 2½%, any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 17½d. per lb.; paraffin wax, 120°, semi-refined, 23½d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 86½°, £3. 15s.; 88½°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 34,816 bags.

New Companies.

West Riding Drug Co., Ltd.—CAPITAL £1,000. in shares of £10. each. This company has been formed to carry on the business of druggists, chemists and druggists, oil and colourmen. Importers and manufacturers of industrial and medicinal chemicals.

Park Lane Chemical Co., Ltd.—CAPITAL £2,000. in shares of £5. each. This company has been formed to carry on the business of chemical manufacturers, and manufacturers of scientific apparatus, and to deal in perfumes, etc.

Estremadura Phosphate Syndicate, Ltd.—CAPITAL £2,000. in shares of £10. each. This company has been formed to carry into effect an agreement between E. Price (the liquidator of the Estremadura Phosphate Co., Ltd.) and F. Wynn, and to work the mines, quarries, and mineral lands of the company.

Goold's Tannery, Ltd.—CAPITAL £20,000. in £5. shares. This company has been formed to purchase and carry on the business formerly carried on by Messrs. Goold, and to carry on the business of tanners, curriers, fellmongers, etc. The subscribers to the memorandum of association are:—A. Woodward, Egerton Villa, Gloucester, director; A. V. Hatton, Worcester Lawn, Gloucester, brewer, etc.; H. Norris, Russell-street, Gloucester, coach builder; E. T. Vibert, Gloucester, timber merchant; W. Renwick, Gloucester, merchant tailor; H. W. Grimes, Gloucester, solicitor; J. P. Moore, Gloucester, architect.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Blue Colouring Matter containing Sulphur. W. H. Claud. 8,221. April 24.
Improvement in the Nitration of Cellulose. C. F. Cross, E. Bevan, and C. Beadle. 8,262. April 24.
Effecting Complete Combustion in Furnaces. W. Bracewell. 8,301. April 25.
Improvements in the Manufacture of White Lead. H. H. Lake. 8,345. April 25th.
Improvement in the Manufacture of Lamp Black. R. Irvine. 8,368. April 25.
Method and Apparatus for Treating Smoke. H. E. Newton. 8,369. April 25.

Improved Apparatus for the Manufacture of Carburetted Water Gas. L. L. Merryfield, J. Townsend Westcott, and W. H. Pearson, junr. 8,371. April 25.
Improvement in the Process and Apparatus for Evaporating or Drying. F. M. Robertson, W. S. Miller, and H. S. Fearon. 8,424. April 26.
Preparation of Antiseptics. S. Pitt. 8,429. April 26.
Improvement in Smoke Consuming Apparatus. H. T. Grainger and J. P. Clark. 8,487. April 27.
Process for the Manufacture of Oil Gas. J. Moeller. 8,510. April 27.
Polyazo Colouring Matters derived from Dioxidyphenylmethane and Condensation Products of Formic Aldehyde with Benzidine, Tolidine, or Dianisidine. C. D. Abel. 8,511. April 27.
Production of Ammonia and Cyanogen and Compounds of Ammonia and Cyanogen. J. Addie, J. C. Cuninghame, and W. Macfarlane. 8,559. April 28.
Preparing Iron or Steel for Tinning or Coating. R. Clayton. 8,572. April 28.
Improvements in Machines for Removing Lint, etc., from Cottonseed, etc. W. T. Boxwell and J. W. Hope. 8,579. April 28.
Machinery for Grinding or Crushing Minerals, etc. R. Morris, T. Driver, and H. W. Houlden. 8,674. April 29.

GERMAN PATENTS for week ending MAY 13, 1893.

Specially abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 22 G. 7,525. Preparation of Yellow Cotton Dyes from *p*-nitrotoluol-sulphonic acid and *p*-Amidophenols. J. R. Geigy and Co., Basel.
 22 L. 7,392. Preparation of Orange Dyes from Acridine Series (addition to patent 59,179). A. Leonhardt and Co., Mülheim a/Rh.
 22 C. 4,374. Preparation of α , α' Naphthylendiaminedisulphonic Acid. L. Cassella and Co., Frankfurt a/M.
 22 F. 6,445. Preparation of Nitro Dyestuffs of Rhodamine Series (addition to patent F. 6,327). Farbwerke a/Höchst.

- 22 F. 7,710. Preparation of Durable Glue. E. Lehmann Oels Magdeburg.
 22 S. 6,260. Preparation of White Lead from Commercial Lead. W. W. Smith and W. Elmore, London.
 26 S. 6,404. Apparatus for preparing Carburetted Water Gas. Springer, Chicago.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. MAY and G. W. BILLING, drug, spice, and general merchants and Great Tower-street, London, E.C., under the style of William May and G. S. SCHWABE and H. C. LANGTON, executors of E. S. Schwabe, G. S. B. and F. S. Schwabe, calico printers and bleachers, Rhodes (near Macclesfield) and Manchester, under the style of Salis Schwabe and Co., J. B. THOMAS, E. THOMAS, and F. R. THOMAS, oil merchants, late of Oil Works, Southwark, S.E., and the Eagle Oil Works, Mill-street, S.E., under the style of William Thomas and Co., so far as regards Thomas
 G. KNIGHT, the younger, and H. M. KNIGHT, oil and colour men, High Uxbridge, W., under the style of G. and H. Knight.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

WALKER, JOHN, and DENT, JAMES (trading as Walker and Dent), London, merchants and drysalters.
 J. HUNTER, WATTS, AND CO., Seething-lane, E.C., chemists and merchants.

Adjudication.

RICKARDY, ARTHUR GEORGE, Abingdon, pharmaceutical chemist.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending April 29th.

Acetic Acid—

Holland, 82 pkgs. Beresford & Co.
 " 148 Philipps & Graves
 " 100 A. & M. Zimmermann

Alkali—

Germany, 40 c. H. Lambert
 France, 670 Arnati & Harrison

Alum—

Germany, 27 pkgs. C. J. Capes & Co.
 Holland, 140 Ohlenschlager Bros.

Aluminium—

France, 480 Major & Field

Antimony—

Japan, 81 t. Pillow, Jones & Co.
 France, 4 Vivian, Younger & Co.
 A. Turkey, 106 French & Smith
 K. Turkey, 50 J. Bamber
 Australia, 60 W. B. Marcus
 " 1/2 J. Morrison & Co.
 " 60 Pillow, Jones & Co.

Barytes—

Holland, 85 cks. A. Zumbeck & Co.
 Germany, 20 brls. T. Palmer
 Holland, 23 J. L. Lyon & Co.
 Belgium, 80
 " 42 Hemingway & Co.
 Germany, 111 W. Harrison & Co.

Caoutchouc—

Zanzibar, 85 c. L. & I. D. Jt. Co.
 Germany, 7 Beresford & Co.
 N. Zealand, 19 L. & I. D. Jt. Co.
 U. States, 132 Prop. Bull Wf
 Rangoon, 323 L. & I. D. Jt. Co.
 Singapore, 41 Kleinwort Sons & Co.
 France, 18 Flageolet & Co.
 Germany, 27 L. & I. D. Jt. Co.
 Zanzibar, 3 Clarke & Smith
 Madagascar, 21 Prop. Bull Wf
 E. Indies, 69 L. & I. D. Jt. Co.
 Hong Kong, 4

Castor Oil—

E. Indies, 10 cks. Candall & Co.
 " 64 cks. Cayzer, Irvine & Co.

Caustic Potash—

France, 110 c. Beresford & Co.
 " 4 brls. Spies Bros. & Co.

Caustic Soda—

Holland, 340 c. Beresford & Co.

Chemicals (otherwise undescribed)

Germany, 9 pkgs. Philipps & Graves
 " 2 L. & I. D. Jt. Co.
 " 100 T. H. Lee
 " 10 H. Boyce
 " 193 A. & M. Zimmermann
 " 3 H. Lambert

Cream of Tartar—

Spain, 9 pkgs. W. C. Bacon & Co.
 Holland, 3 Mddleton & Co.
 France, 2 J. L. Lyon & Co.
 " 5 G. Ward & Sons

Dextrine—

Germany, 100 pkgs. J. Barber & Co.
 " 100 J. Anderson & Co.
 Holland, 50 T. H. Lee

Dyestuffs—

Belgium, 6 pkgs. Sawyer, Sons & Co.
 France, 1 Burnett S. S. Co.

Anthracene

France, 67 pkgs. Burt, Boulton & Co.

Argols

Italy, 144 pkgs. Thames S. T. & Co., Ltd.
 France, 2 B. & F. Wf. Co.

Cochineal

Canaries, 21 pkgs. Marshall & French

Cutch

Rangoon, 1,520 pkgs. A. Howden & Co.
 " 447 Leech & Co.
 " 451 Gray, Laurier & Co.
 " 150 J. & G. Bullock & Co.
 " 750 Anderson, Weber & Smith
 " 1,750 Wallace Bros.
 " 400 Bullock & Co.
 " 300 L. & I. D. Jt. Co.

Divi Divi

E. Indies, 138 pkgs. R. Von Glehn & Sons
 " 208 Walker, Mansie & Co.

Extracts

Belgium, 25 pkgs. Leach & Co.
 " 100 Boucher, Mortimore & Co.

Denmark

20 pkgs. Tegner, Price & Co.

France

140 Carey & Sons
 N. Russia, 40 M. D. Co.

Belgium

2 Arnati & Harrison

Gambier

Singapore, 923 pkgs. Beresford & Co.
 " 440 Brinkmann & Co.
 " 99 S. Barrow & Bro. Ltd.
 " 168 R. & J. Henderson
 E. Indies, 220 E. Boustead & Co.

Indigo

E. Indies, 21 cts. R. Von Glehn & Sons

"

20 Ross & Deering

"

9 Parry & Co.
 " 10 Croysdale & Co.
 " 28 Arbuthnot, Latham & Co.

"

15 7 cts. L. & I. D. Jt. Co.

"

18 Benecke, Souchay & Co.

"

13 W. Brandts, Son & Co.

Logwood

B. Honduras, 70 t. Coml. L. Co.

Myrabolama

E. Indies, 274 pkgs. R. G. Hall & Co.
 " 1,364 W. Shelcott
 " 921 Baxter & Hoare
 " 396 Beresford & Co.

Orchella

Mombasa, 483 pkgs. Lewis & Peat
 Germany, 242

E. Indies

7 pkgs. L. & I. D. Jt. Co.

Sumac

Italy, 240 pkgs. J. Kitchen, Ltd.

Tanners' Bark

Holland, 22 t. Comp. Mar. Belge

Turmeric

E. Indies, 5 pkgs. Co-op. L. Assn., Ltd.

Shanghai, 50 Union L. Co.
 Ceylon, 123 pkgs. Anderson

Valonia

A. Turkey, 210 t. Hicks, Nae
 " 251 A. & W.
 " 109 Mavro Valtas
 " 30 Schwabe
 " 117 Annis
 " 31 Ada

Dyestuffs (otherwise undec)

U. States, 7 pkgs. W. W.

Farina—

Holland, 50 pkgs. J. Kail
 " 100 A. & W.
 " 80 J. Barlow
 B. W. L., 20 F. Groot
 Holland, 50 Herms, Pons
 Germany, 200 J. Anderson

French Chalk—

Italy, 4500 Magoe, Taglie

Glucose—

Germany, 395 pkgs. 400 cts.

S. Francisco

279 1,000 154

U. States

50 254 W.
 " 625 4,122 E. C.

"

50 300 U. States

"

2,400 2,400 L. & I.

"

2,000 2,000 F. Groot

"

25 150 F. Groot

"

1,900 1,900 Taglie

"

100 54 L. & I.

"

200 200 L. & I.

"

50 45 J. Kail

"

2,400 2,400 Chalk

"

250 1,373 T. H.

Soda—
Holland, 80 c. W. G. Taylor & Co.
Sodium Acetate—
France, 27 pkgs. S. F. Waters & Co.
Sodium Chlorate—
France, 50 pkgs. A. Hughes
Sodium Hyposulphite—
Holland, 100 pkgs. Beresford & Co.
Stearine—
Belgium, 10 bgs. W. Meyerstein & Co.
France, 70 Beresford & Co.
285 G. Boor & Co.
Sulphur—
Italy, 5 t. J. Kitchin, Ltd.
Carthage, 100 A. Hunter & Co.
Tallow—
N. Zealand, 43 cks. Flack, Chandler & Co.
" 107 Philipps & Graves
" 2 J. Graves
" 12 Low, Sons & Bedford
Melbourne, 2 J. Morrison & Co.
Sydney, 53 Goad, Rigg & Co.
" 131 Arnati & Harrison
" 45 Dangar, Grant & Co.
" 703 A. B. Curtis & Co.
" 142 Leach & Co.
" 119 Pillow, Jones, & Co.
" 136 T. Palmer
" 400 J. Greig
" 170 Bk. of N. S. Wales
Tasmania, 25 Philipps & Graves
Queensland, 23 Anning & Cobb
" 77 Philipps & Graves
" 15 Beresford & Co.
N. Zealand, 14 Brown & Elmslie
" 241 Sollas & Sons
" 20 N. M. & A. Co. of N. Z.
" 132 Dalgety & Co.
" 98 Beresford & Co.
Sydney, 149 cks. H. Lambert
Singapore, 1,556 tins. Kaltenbach & Schmitz
" 21 cks. Philipps & Graves
N. Zealand, 38 Culverwell, Brooks & Co.
Melbourne, 141 Dalgety & Co.
Sydney, 146 Philipps & Graves
" 24 Elkan & Co.
" 26 Beresford & Co.
" 85 Cuthbert & Hall
Tasmania, 36 Anning & Cobb
Melbourne, 7 Beresford & Co.
Adelaide, 117 Elkan & Co.
Sydney, 139 Hoare, Wilson & Co.
N. Zealand, 152 N. Z. L. & M. A. Co.
Holland, 3 Philipps & Graves
Melbourne, 3 A. Marshall
Tartaric Acid—
Holland, 20 pkgs. Middleton & Co.
" 30 B. & F. Wf. Co., Ltd.
France, 6 B. & N. Wf. Co., Ltd.
Holland, 9 B. & N. Wf. Co., Ltd.
Ultramarine—
Holland, 4 cs. Hernu, Peron & Co.
" 6 Haefner, Hilpert & Co.
Germany, 24 cks. Becker & Ulrich
Belgium, 11 pkgs. Leach & Co.
Holland, 2 cks. Philipps & Graves
Germany, 13 cs. W. J. Davies & Sons
Varnish—
U. States, 42 pkgs. Magee, Taylor & Co.
Verdigris—
France, 2 pkgs. B. & F. Wf. Co., Ltd.
White Lead—
Belgium, 24 cks. Burrell & Co.
" 37 Leach & Co.
" 13 124 brls. J. L. Lyon & Co.
Holland, 10 Philipps & Graves
" 4 H. Wallace & Co.
Germany, 49 Randall Bros.
" 24 M. Ashby, Ltd.
" 19 G. Clifford
" 15 Petri Pros.
" 30 G. Farmiloe & Sons
Holland, 10 P. Jantzen
France, 48 G. Rahn & Co.
W. Harrison & Co.
Zinc Oxide—
Germany, 100 brls. M. Ashby, Ltd.
Holland, 125 " J. Matton
Germany, 35 cks. Philipps & Graves
Holland, 10 " W. Balchin
" 50 "

W. Iteds
Howard & Sons
J. Greig
J. Burnett & Sons
Schuck & Co.
Flkan & Co.
Stein Bros.
Lister & Biggs
W. M. Smith & Sons
L. & I. D. Jt. Co.
W. Harrison & Co.
Prop. Chamblin's
G. Ward & Sons
Philipps & Graves
Robinson & Co.
Williams, Torrey & Co.
J. L. Lyon & Co.
Philipps & Graves
R. Warner & Co.
Colhurst & Harding
L. & I. D. Jt. Co.
F. V. Smythe & Co.
Bennett S. S. Co., Ltd.
T. Palmer
Flageolet & Co.
Hernu, Peron & Co.
R. Baelz & Co.
Craven & Co.
Mory & Co.
Spies Bros. & Co.
T. H. Lee
H. Beck
J. H. Usmar & Co.
Prod. Brokers Co.
Williams, Torrey & Co.
H. Hill & Sons
T. H. Lee
G. H. Frank
A. Hunter & Co.
G. M. Bauer
Anglo Contl. G. Wks.
Arnati & Harrison
L. & I. D. Jt. Co.
L. & I. D. Jt. Co.
G. Rahn & Co.
J. Paysen
Baxter & Hoare
B. Galloway
R. G. Hall & Co.
Beresford & Co.
J. Threddar, Son & Co.
Marshall & French
Craven & Co.
Spies Bros. & Co.
Petri Bros.
Beresford & Co.
F. W. Berk & Co., Ltd.
Spies Bros. & Co.
Williams, Torrey & Co., Ltd.
T. S. Whitehead & Co.
C. Tennant, Sons & Co.
Moore & Hole
Prod. Brokers Co.
S. Chiesman & Co.
G. Nutter & Co.
Brown & Elmslie
P. Hecker & Co.

LIVERPOOL.

Week ending April 27th.

Acetate of Lime—
New York, 932 bgs.
Ammonium Acetate—
Rotterdam, 3 brls.
Antimony—
Oporto, 66 cks. Knowles & Co.
In transit, 66
Barytes—
Bremerhaven, 23 cks.
Boracic Acid—
Leghorn, 50 cks.
Castor Oil—
Genoa, 19 cs. Evans, Sons, & Co.
Chemicals (otherwise undescribed)
Bremerhaven, 1 ck.
Rotterdam, 3
Colours—
Antwerp, 11 brls. J. T. Fletcher & Co.
Rotterdam, 42 cks.
Ghent, 9
Cream of Tartar—
Barcelona, 5 cks.
Tarragona, 5 Sachse & Klemm
Rotterdam, 3
Dyestuffs—
Algarobilla
Coquimbo, 32 bgs. Schintz & Co.
Annatto
Marseilles, 1 ck.
Bordeaux, 25
Argols
Bordeaux, 33 cs.
Cutch
Rangoon, 3,240 bxs.
Divi Divi
Curacao, 1 bg.
Hamburg, 850 kgs.
Santa Martha, 688 sks.
Rio de la Hache, 255 t. Widow, Duranty, & Son
Extracts
Marseilles, 12 brls.
Bordeaux, 200 cks.
Antwerp, 11
Fustic
Savannilla, 94 t. G. N. Muller & Co.
Vera Cruz, 1,724 ps. R. B. Watson & Co.
" 1,543 blks. Ledward, Bibby, & Co.
Logwood
Laguna, 748 qtls. R. B. Watson & Co.
Saffron
Valencia, 2 cs.
Sumac
Palermo, 100 cs. 50 bgs.
Yalonia
Syra, 572 bgs. C. Nicholaïdis
Smyrna, 361 t. Barry Bros.
" 4,516 bgs.
" 368 Papayanni & Jeremias
Farina—
Hamburg, 100 bgs.
Glucose—
New York, 439 brls.
Limestone—
Antwerp, 2 crts. J. T. Fletcher & Co.
" 4
Magnesite—
Hamburg, 119 cks.
Manganese—
Coquimbo, 906 t. 2 cks.
Hamburg, 117 t. M'Queen Bros.
Mineral White—
Genoa, 20 bgs.
Ochre—
Bordeaux, 20 cks.
Paint—
Boston, 80 cs.
Paraffin Scale—
Philadelphia, 800 brls.
Potash Salts—
Bremerhaven, 5 cks.
Pyrites—
Huelva, 3,182 t. Tennant & Co.
" 3,032 Matheson & Co.
Quicksilver—
Gijon, 100 brls. A. Ruffer & Sons

Saltpetre—
Hamburg, 180 kgs. 8 cks.
Silica—
Bremerhaven, 200 bgs.
Soap—
Marseilles, 35 cs.
Leghorn, 450 bxs. V. & S. Steney
Soda—
Rotterdam, 25 cks. 1 brl.
Stearine—
Antwerp, 24 bgs.
Sulphur—
Huelva, 2,540 t. Matheson & Co.
Catania, 120
Talc—
Genoa, 50 bgs.
Tallow—
B. Ayres, 45 pps. 160 hf. pps.
New York, 50 hds. Co-op. W'sale Society
Boston, 50
69 Stollerfoht, Sons, & Co.
Philadelphia, 91 12 tcs.
25 100 200 brls. G. E. Chase
Tartar—
Bordeaux, 13 cks.
Tartaric Acid—
Marseilles, 4 cks.
Rotterdam, 2 20 kgs.
Ultramarine—
Hamburg, 2 cks.
Rotterdam, 21 32 cs.
Varnish—
Hamburg, 1 ck.
Waste Salt—
Hamburg, 220 t.
White Lead—
Rotterdam, 26 cks.
Zinc Ashes—
Constantinople, 109 bgs.
Zinc Oxide—
Antwerp, 73 brls.
Rotterdam, 25 cks.

HULL.

Week ending April 29th.

Barytes—
Rotterdam, 14 cks. W. & C. L. Ringrose
Antwerp, 40 pks. Bailey & Leatham
Bremen, 25 Veltmann & Co.
Rotterdam, 63 Hutchinson & Co.
Caoutchouc—
Hamburg, 16 cs. C. M. Lofthouse & Co.
Castor Oil—
Antwerp, 15 cs. Bailey & Leatham
Chemicals (otherwise undescribed)
Dunkirk, 25 pks. Wilson, Sons, & Co., Ltd.
Rotterdam, 1 cs. W. & C. L. Ringrose
Bremen, 2 cks. 2 5 kgs. Veltmann & Co.
Bari, 21 Wilson, Sons & Co., Ltd.
Colours—
Flushing, 5 cs. 48 cks. Wilson, Sons, & Co., Ltd.
Rotterdam, 137 pks. W. & C. L. Ringrose
" 18 2 cks. G. Lawson & Sons
" 8 7 6 Hutchinson & Son
Bremen, 4 Veltmann & Co.
" 8 W. S. Merrikin
Antwerp, 10 brls. Wilson, Sons, & Co., Ltd.
Dyestuffs—
Alizarine
Rotterdam, 72 pks. W. & C. L. Ringrose
Flushing, 20 cks. Wilson, Sons, & Co., Ltd.
Rotterdam, 25 Hutchinson & Son
Sumac
Christiania, 1 bg. Wilson, Sons, & Co., Ltd.
Trieste, 25 Bailey & Leatham
Palermo, 785 20 bls. Wilson, Sons, & Co., Ltd.
" 400

Farina—			
Harlingen,	950 bgs.		
Glucose—			
New York,	20 bls.	Wilson, Sons,	
		& Co., Ld.	
	390 pkgs.		
Kaolin—			
Rotterdam,	269 bls.	Hutchinson &	
		Son	
Limestone—			
Antwerp,	1 crt.	Wilson, Sons,	
		& Co., Ld.	
Ochre—			
Rouen,	40 cks.		
Phosphate Rock—			
Port Royal,	1,522 t.	Hammond, Ems,	
		& Co.	
Phosphorus—			
Hamburg,	46 cs.	T. F. Bell & Co.	
Pitch—			
Amsterdam,	15 cks.	H. F. Pudsey	
Plumbago—			
Hamburg,	8 cks.	C. M. Lofthouse	
		& Co.	
Potash—			
Antwerp,	25 pks.	Wilson, Sons,	
		& Co., Ld.	
Size—			
Hamburg,	40 bgs.	L. & V. Ry.	
		Co.	
"	1 ck.		
Soap—			
New York,	1 cs.	Wilson, Sons,	
		& Co., Ld.	
Soda—			
Rotterdam,	18 cks.	W. & C. L.	
		Ringrose	
Sodium Nitrate—			
Taltal,	9,889 bgs.		
Stearine—			
Antwerp,	10 bgs.	Wilson, Sons,	
		& Co., Ld.	
Rotterdam,	25 bls.	"	
Sulphur—			
Catania,	2,103 pkgs.	Wilson, Sons,	
		& Co., Ld.	
Tallow—			
Antwerp,	111 bgs.	Wilson, Sons,	
		& Co., Ld.	
Tar—			
Amsterdam,	4 brls.	Sissons Bros.	
		& Co.	
Tartaric Acid—			
Rotterdam,	9 cks.	W. & C. L.	
		Ringrose	
"	1	Hutchinson & Son	

Ultramarine—			
Rotterdam,	4 cks.	Todd & Son	
Bremen,	8		
Rotterdam,	20 cs.	G. Lawson &	
		Sons	
White Lead—			
Rotterdam,	8 cks.	A. Sanderson	
		& Co.	
"	10	T. F. Chambers	
		& Co.	
Antwerp,	22	Bailey & Leatham	
Rotterdam,	35	Hutchinson & Son	

GLASGOW.

Week ending May 4th.

Acetate of Lime—			
New York,	990 bgs.		
Aluminium—			
Antwerp,	1 cs.		
Aniline Oil—			
Rotterdam,	1 ck.	J. Rankine &	
		Son	
Barium Sulphate—			
Antwerp,	290 bgs.	27 cks.	
Barytes—			
Rotterdam,	46 cks.	J. Rankine &	
		Son	
"	86		
Castor Oil—			
Antwerp,	29 cks.		
Chemicals (otherwise undescribed)			
Hamburg,	6 cs.		
Cobalt Ore—			
Noumea, N.C.,	399 t.	Nickel Co.	
Colours—			
Antwerp,	2 cks.		
Rotterdam,	33 pkgs.		
Hamburg,	22	2 cs.	
Dyestuffs—			
Alizarine			
Rotterdam,	12 brs.	40 cks.	J.
			Rankine & Son
"	813 pkgs.		
Aniline			
Rotterdam,	2 cs.	J. Rankine &	
		Son	
Extracts			
Antwerp,	6 cks.		
Madder			
Rotterdam,	4 cks.	J. Rankine &	
		Son	
Farina—			
Delft,	100 bls.		
Danzig,	200 bgs.		
Glucose—			
New York,	200 brls.		

Phosphate of Lime—			
Antwerp,	100 bgs.		
Potash—			
Rotterdam,	34 cks.	J. Rankine &	
		Son	
Rosin			
New York,	1,471 brls.		
Salicylic Acid—			
Hamburg,	1 cs.		
Saltpetre—			
Hamburg,	100 kgs.		
Sodium Nitrate—			
Iquique,	1,200 t.	Alex Cross & Sons	
Rotterdam,	2 cks.	J. Rankine &	
		Son	
Stearine—			
Hommelvik,	32 cks.		
Rotterdam,	16	J. Rankine &	
		Son	
Tallow—			
New York,	70 hhds.		
Yarnish—			
New York,	27 brls.		
Waste Salt—			
Hamburg,	1,500 bgs.		
White Lead—			
Rotterdam,	3 cks.	J. Rankine &	
		Son	
Antwerp,	8 cks.		
Zinc White—			
Rotterdam,	50 cks.	J. Rankine &	
		Son	

TYNE.

Week ending April 20th.

Alum Earth—			
Hamburg,	18 cks.	Tyne S. S. Co.	
Barytes—			
Rotterdam,	48 cks.	Tyne S. S. Co.	
Antwerp,	50 bgs.	"	
Colours—			
Hamburg,	4 cks.	Tyne S. S. Co.	
Limestone—			
Antwerp,	2 crts.	Tyne S. S. Co.	
Phosphate—			
Antwerp,	250 t.	Blaydon Manure	
		Co.	
"	380		
"	140	Langdale's Chemical	
		Manure Co.	
Pyrites—			
Huelva,	4,545 t.	Scott Bros.	
Salt—			
Hamburg,	300 t.		
Sulphur—			
Pomaron,	910 t.	Mason & Barry	

GOOLE.

Week ending April 19th.

Alizarine—			
Rotterdam,	213 cks.		
Alkali—			
Calais,	19 lbs.		
Antimony—			
Boulogne,	7 cks.		
Caoutchouc—			
Boulogne,	11 cks.		
Dyestuffs (otherwise undec.)			
Boulogne,	34 cks.	160 t.	
Farina—			
Hamburg,	2,378 bgs.		
Delft,	1,000		
Glucose—			
Hamburg,	50 cks.		
Dunkirk,	100 bgs.		
Logwood—			
Jamaica,	466 t.		
Potash—			
Calais,	19 lbs.		
Rotterdam,	48 cks.		
Dunkirk,	70	21	
Saltpetre—			
Rotterdam,	200 bgs.		
Sulphuric Acid—			
Rotterdam,	5 cs.		
Waste Salt—			
Hamburg,	926 t.	787 lbs.	
Zinc Oxide—			
Antwerp,	5 cks.		

GRIMSBY

Week ending April 20th.

Chemicals (otherwise undec.)			
Rotterdam,	70 cks.		
Antwerp,	7	20 lbs.	
Dyestuffs (otherwise undec.)			
Dieppe,	42 cks.		
Farina—			
Hamburg,	143 bgs.		
Kainit—			
Hamburg,	599 bgs.		
Size—			
Antwerp,	14 cks.		
Zinc Ashes—			
Antwerp,	5 cks.		

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 3rd.

Acids—			
Rio de Janeiro,	2 cks.	£15	
Porto Alegre,	2	23	
Calcutta,	24 pkgs.	31	
Antwerp,	4 cs.	20	
Alum Cake—			
Calcutta,	50 t. 7 c.	£172	
Aluminous Cake—			
Calcutta,	32 t. 10 c.	£100	
Ammonia (Liquid)—			
Brisbane,	16 cs.	£35	
Ammonium Carbonate—			
Dunkirk,	1 t. 2 c.	£99	
Calcutta,	4 cs.	13	
Santos,	1	15	
Odessa,	1	25	
Ammonium Chloride—			
Rio de Janeiro,	25 cs.	£14	
Constantinople,	2 t. 10 c.	83	
Alexandretta,	12	18	

Ammonium Sulphate—

Antigua,	5 t.	£65	
Hamburg,	95	1,185	
Valencia,	50	525	
Rotterdam,	72	3 c.	880
Demerara,	58	6	772
Barbadoes,	100	1	1,285
Mauritius,	51	3	635
Anhydrous Ammonia—			
Hamburg,	66 cyldrs.	£121	
Arsenic—			
Gothenburg,	1 t. 1 c.	£16	
Bombay,	40 kgs.	41	
Barium Nitrate—			
Calcutta,	1 c.	£39	
Bleaching Powder—			
Gibraltar,	6 t. 1 c.	£47	
Algoa Bay,	2	37	
Boracic Acid—			
Brisbane,	1 c.	£26	

Borax—

Copenhagen,	6 t.	£304	
Brisbane,	1	30	
Oporto,	5 c.	9	
Hamburg,	6 cks.	47	
Borax Crystals—			
M. Video,	8 c.	£12	
Calcium Chloride—			
Lyttleton,	21 drs.	£15	
Carbolic Acid—			
E. London,	1 cs. 19 drs.	£26	
Brisbane,	3 c.	10	
Rotterdam,	24 cks.	76	
Carbolic Oil—			
Rotterdam,	9 t. 14 c.	£241	
Caustic Potash—			
Melbourne,	1 t. 3 c.	£22	
Caustic Soda—			
Oporto,	3 t. 10 c.	£43	
Mauritius,	7	10	125
Adelaide,	2	7	33
Melbourne,	1	15	23

Chemicals (otherwise undec.)

Shanghai,	41 cs.		
Calcutta,	4		
Yokohama,	15 c.		
Adelaide,	3		
Montreal,	11 pkgs.		
Algoa Bay,	1		
Bahia,	6		
Bombay,	1 t. 1 c. 11 cks. 20 c.		
Penang,	45 cs.		
Citric Acid—			
Cape Town,	1 c.		
Barcelona,	20		
Rotterdam,	20		
Hamburg,	1 t. 19	160	
Yokohama,	5		
Danö,	1		
New York,	1		
Lisbon,	1		
Wanganui,	7		
Genoa,	15		
Leghorn,	8		
Hobart,	1		
Singapore,	1		
Marseilles,	2		
B. Ayres,	7		

Lumps— Salts— Oil 20 sks. £12 ene 6,076 brls. £2,621 l, 325 cks. £1,951 f, 71 420 n, 26 drs. 281 cks. £1,730 100 351 ar Dye 3 cs. £91 ar Oil 760 cks. £314 te 15,975 galls. £84 23,210 216 ha 30 drs. £30 aline 88 cks. £119 k, 46 56 ren, 5 10 i, 6 100 drs. 25 10 23 88 120 in Wax 50 bgs. £120 597 t. £347 250 brls. 110 n, 250 350 rk, 1,817 bgs. 366 in, 88 pkgs. 24 shia, 1,625 bgs. 271 255 366 250 188 150 188 5 cks. £60 3 18 20 rns. 10 beth, 805 pkgs. 39 3 t. 11 c. £8 Sulphate— 121 t. 5 c. £1,770 5 2 79 11 160 22 5 330 10 9 11 192 f Tartar— o, 4 t. £350 lon, 3 cs. 16 2 c. 8 10 128 1 78 stants— 4 cks. 17 cs. £56 2 15 urwin, 40 drs. 106 9 t. 6 18 12 6 c. 25 29 pkgs. 36 Ont., 7 200 40 cks. 50 10 50 s of Sulphur— 2 t. 10 c. £26 oupe, 150 t. £1,650 25 250 3 7 c. 34 alphate— 3 t. 4 c. £10 32 t. £344 45 12 c. 318 lam, 207 17 500 ey, 1 2 8 8 12 98 l'Olonne, 184 5 1,354 4 11 31 ary, 25 263 10 51 oupe, 49 5 170 78 16 208 30 300 ique, 216 16 1,905 20 120 19 19 120 leid— 28 cbys. £50	Phosphoric Acid— Mackay, 8 t. £140 Bundaberg, 13 c. 30 Phosphorus— Sydney, 11 cs. £111 Melbourne, 3 c. 30 Potash Crystals— Auckland, 1 c. £12 Potassium Bichromate— Calcutta, 11 c. £24 Potassium Chlorate— Sydney, 10 c. £42 Genoa, 1 t. 64 Antwerp, 11 38 Oporto, 2 9 Potassium Cyanide— Brisbane, 5 cs. £29 Potassium Iodide— Melbourne, 1 c. £61 Potassium Nitrate— Brisbane, 20 kgs. £22 Potassium Prussiate— Sydney, 5 c. £23 Lisbon, 5 22 Saltpetre— Vigo, 3 t. 15 c. £77 Canterbury, 10 12 Bahia, 1 3 26 Sydney, 2 45 Piraeus, 2 10 52 Sheep Dip— Kingston, 8 drs. £10 Pt. Elizabeth, 1 t. 9 c. 50 Soda— Wanganui, 2 t. £13 Algoa Bay, 2 13 Madras, 10 c. 16 Huelva, 17 3 Trinidad, 1 7 Soda Ash— Townsville, 5 t. 4 c. £28 Soda Crystals— Kingston, 16 c. £3 Batavia, 13 t. 50 Algoa Bay, 1 19 7 Sodium Bicarbonate— Brisbane, 4 t. £22 Pt. Elizabeth, 5 c. 7 Sodium Salicylate— Melbourne, 1 c. £29 Sodium Sulphate— Ghent, 60 t. £90 Strontium Nitrate— Calcutta, 1 c. £58 Brussels, 8 11 Sulphur— Melbourne, 10 t. £84 Brisbane, 1 18 c. 11 Sulphuric Acid— Colombo, 15 c. £10 Madras, 4 t. 2 21 Tartaric Acid— Calcutta, 1 c. £8 Wellington, 5 cs. 30 Singapore, 2 12 Melbourne, 2 t. 190	Alum Cake— Calcutta, 6 t. 4 c. £19 Aluminium Cake— Montreal, 13 t. £40 Ammonia— Galatz, 5 c. £16 Ammonium Carbonate— Genoa, 2 t. 7 c. £71 Vera Cruz, 3 5 Leghorn, 1 4 34 Marseilles, 4 6 Venice, 1 8 35 B. Ayres, 3 80 Gothenburg, 12 3 q. 17 Ammonium Chloride— Philadelphia, 15 t. £341 Smyrna, 15 c. 25 Alexandretta, 10 17 Montreal, 1 7 27 Vera Cruz, 3 5 Constantinople, 2 10 83 Kingston, Ont., 3 5 Trieste, 1 1 2 36 Barcelona, 49 8 528 Ottawa, 1 33 Antwerp, 11 12 Jedda, 2 66 Gefle, 16 26 Ammonium Sulphate— Genoa, 50 t. £562 Ghent, 41 2 q. 485 Montreal, 4 19 c. 2 62 Philadelphia, 4 18 64 Trinidad, 8 15 107 Las Palmas, 5 65 Barcelona, 29 11 1 367 Baltimore, 25 14 3 285 Valencia, 97 1 3 1,185 Arsenic— B. Ayres, 2 t. £43 Asbestos— Lisbon, 1 cs. £52 Barium Chlorate— Hamburg, 13 c. £52 Bleaching Powder— Antwerp, 26 cks. £52 Boston, 1,525 80 brls. N. Orleans, 748 100 63 pkgs. N. York, 104 27 cs. Philadelphia, 5 150 Piraeus, 11 11 Ghent, 15 20 Lisbon, 21 70 Montreal, 48 50 bxs. Naples, 40 12 Odessa, 70 15 San Sebastian, 15 8 t. 6 c. 3 q. 130 Bombay, 8 t. 6 c. 3 q. 130 Boracic Acid— Yokohama, 4 t. 15 c. £83 Havana, 9 18 New York, 6 17 Borax— Alexandria, 2 t. 12 c. £75 Rio Janeiro, 4 2 q. 7 Rosario, 14 2 25 Havana, 3 12 108 Mayaguez, 9 3 14 Antwerp, 5 17 2 175 Montreal, 9 1 14 Hamburg, 4 1 3 122 Ibrail, 1 11 40 San Sebastian, 2 10 1 90 Stockholm, 1 1 2 30 Calcined Magnesia— Constantinople, 1 cs. £40 Genoa, 2 30 Calcium Chloride— New York, 9 t. 19 c. £40 Carbolic Acid— Rotterdam, 5 t. £277 B. Ayres, 6 15 c. 3 q. 253 Montreal, 8 28 Genoa, 14 35 Antwerp, 18 2 28 Hamburg, 46 12 1 1,547 New York, 1 cs. 6 300 Odessa, 10 1 36 Hamilton, 1 19 3 116 Boston, 4 6 2 138 Rotterdam, 10 15 176	Carbolic Oil— Hamilton, 1 t. 9 c. £53 Caustic Potash— New York, 1 t. 12 c. £35 B. Ayres, 1 16 1 q. 45 Antwerp, 2 2 50 Caustic Soda— Alicante, 26 dms. Bahia, 50 Barcelona, 86 50 cks. Boston, 28 75 kgs. B. Ayres, 50 Carthage, S. A., 10 Copenhagen, 37 Genoa, 102 Hamburg, 8 Higo, 250 Ibrail, 10 Kobe, 250 La Guayra, 25 London Ont., 50 qty. 25 Marseilles, 75 Melbourne, 50 M. Video, 25 N. Orleans, 25 New York, 2,096 25 bxs. 45 pkgs. Porto Rico, 12 Puerto Cabello, 3 Rotterdam, 95 Ronen, 34 St. Louis, 35 brls 10 kgs. 20 cs. San Francisco, 134 dms. Tunis, 114 Valencia, 40 Valparaiso, 110 Vera Cruz, 70 Volo, 17 Yokohama, 150 Bilbao, 38 Dunedin, 17 Havre, 8 Lisbon, 15 Malmo, 6 Montreal, 100 50 bxs. Naples, 60 Newcastle, 6 Oporto, 60 Pt. Elizabeth, 18 Samarang, 11 San Sebastian, 50 Savannah, 50 Seville, 595 Sourabaya, 2 Stettin, 84 Tarragona, 30 Chemicals (otherwise undescribed) Galatz, 9 c. 3 q. £16 Mersyoe, 4 £7 Stettin, 2 t. 16 1 93 Stockholm, 1 11 2 52 Philadelphia, 13 6 310 Rotterdam, 10 17 Cairo, 1 2 2 36 Ibrail, 12 19 Volo, 5 8 Genoa, 1 16 59 New York, 9 6 207 China Clay— Bombay, 25 t. Boston, 358 9 c. Calcutta, 120 cks. Halifax, 50 bgs. Maceio, 12 Barcelona, 20 t. Chromium Trioxide— Hamburg, 2 c. 1 q. £6 Citric Acid— Coronel, 2 c. £16 Seville, 1 3 q. 9 Santander, 1 2 19 Coal Products— Aniline Colours, Milano, 1 cs. 1 kg. Aniline Dyes Canton, 5 cs. Shanghai, 25 Aniline Oil Genoa, 8 dms. Anthracene Rotterdam, 18 t. £685 Pitch Cette, 2,176 t. 6 c. St. John's, Nfld., 14 14 Bordeaux, 257 10 30 brls. Galatz, 130 4 10 Tar Bahia, 24 t. 7 c. 25 brls. Philadelphia, 130 Ibrail, 50 Kustendjie, 10
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LIVERPOOL.

Week ending May 3rd.

Alum— Quebec, 11 t. £50 Varna, 1 9 c. 7 Kingston, Ont., 18 4 Calcutta, 14 8 100 Patras, 2 10 Charlotte Town, 9 3 Smyrna, 3 5 19 Galatz, 8 8 1 q. 49 Montreal, 33 2 3 165 B. Ayres, 2 12 1 12

Copperas—

Calcutta,	37 t.	2 c.	1 q.	£69
Syra,	3	7	1	6
Montreal,	3	1		6
Kingston, Ont.,	4	16		8
Beyrout, 20 cks.				8
Bombay,	15	19		29

Copper Sulphate—

Naples,	23 t.	13 c.		£368
Paris,	23	7		374
Leghorn,	21		3 q.	335
Lisbon,	10	11		174
Tarragona,	6	14		221
Genoa,	78	14	3	1,253
Nantes,	2	2	1	35
Nantes,	30	17	1	494
Bordeaux,	374	8	3	5,973
Marseilles,	34	2	1	538
St. Johns, Nfld.,	3		1	50
Algiers,	11	2		176
M. Video,	2	4		35
Hamburg,	20	2		291
Fiume,	5	2	3	74
Venice,	147	19	1	2,303
Ghent,	12	10		195
Catania,	3	3	2	49

Dried Blood—

Halifax,	1 t.			£15
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Farina—

Magog,	5 cks.			
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Flowers of Sulphur—

Lisbon,	9 t.	4 c.		£73
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Guano—

Valencia,	350 t.	1 c.		£2,358
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Gypsum—

New York,	52 t.	17 c.		£194
Bombay,	2	1		9

Iron Oxide—

Valparaiso,	55 t.		3 q.	£140
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Lime—

Antigua,	7 t.	13 c.	2 q.	£14
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Magnesium Carbonate—

Lisbon,	14 c.	1 q.		£16
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Magnesium Chloride—

Bombay,	10 t.	2 c.		£27
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Magnesium Sulphate—

St. Vincent,	1 t.			£5
Bombay,	10			53
Maceio,	12 cks.			

Manure—

Cape Town,	3 t.			£7
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Metallic Sodium—

Rotterdam,	2 t.	7 c.		£509
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Paint—

Amsterdam,	5 kgs.	6 dms.		
Axim,	61		1 ck.	
Genoa 3 cs.	46	1		
Iquique,			27	
La Libertad, 25			3	
Maceio,	10		2	
Mayaguez,			4	
Montreal,			4	
N. Orleans,	50			
Pernambuco,			4	
Philadelphia,			15	
Ponce,			4	
Pt. Elizabeth,	6	1 cs.	2 brls	
Rosario, 41 cks.			25	
Rotterdam,	15			
San Francisco,			50 dms.	
San Juan,	90			
San Sebastian,			3	
Sierra Leone,	100			
Sourabaya,			30 cks.	
Toronto,	25			
Tripoli, 1 tce. 9				
Valparaiso,	225	6	74	
Vera Cruz, 2 cs.				
Algoa Bay,			1	
Benin,	7			
Cape Town,			6	
Curacao,	75			
Hamburg, 3 crts.				
Jeremie, 2 cs.				
Nassau,			1	
Opobo,	5			
Para,	10		28	
Penang,			2	
Puerto Cabello,			1 cs.	
Rio de Janeiro,			20	
Sagua,			8	
St. Johns, Nfld.,			2	
Santander,			34	
Sherbro,	80			
Toronto,	10	10 brls.		

Painters' Colours—

Alexandria,	2 cks.	20 brls.		
Boston,	10 kgs.			
B. Ayres,	320 dms.	125 brls.	154 kgs.	
		112 cks.	75 cs.	

Calcutta,	55 cs.			
Havana,	2	11 brls.		
Ihrail,		2		
Kurrachee,			40 kgs.	
Mollendo,		4		
M. Video,		7		
Montreal,	67 cks.	41		
New York,	50 cks.	272 kgs.	100 dms.	
			200 brls.	
Oporto,	10 kgs.			
Para, 1 cs.	10 pkgs.	15 tcs.	117 kgs.	
			22 brls.	60 dms.
Trinidad,	12 kgs.			
Akassa,	25			
Baltimore,	50		135 cks.	
Belize,	38			
Boca,			36	
Bombay,	796 pkgs.	375 kgs.		
Callao,	170 cs.			
Cardenas,	4 brls.			
Cartagena, S.A.,	20 kgs.			
Galatz,	290			
Ghent,			24	
Gothenburg,	50			
Hamburg,			100 bgs.	
Limon,	5 brls.			
Marseilles,			50	
Mayaguez,	2			
Paris,			20	
Rotterdam,	100			
Stettin,			10	

Paraffin Wax—

Para,	25 cs.			
Rio de Janeiro,	29 dms.			
Trieste,	100 bgs.			
Venice,	60	20		

Phosphorus—

Kobe,	6 cs.			£60
Vera Cruz,	15 c.			181

Potassium Bicarbonate—

Oporto,	7 c.	3 q.		£16
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Potassium Bichromate—

Ghent,	1 t.	4 c.	3 q.	£48
Havana,	13	1		25
Malaga,	2	3		93

Potassium Carbonate—

Montreal,	3 t.	14 c.		£70
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Potassium Chlorate—

Boston,	3 t.	15 c.		£216
San Paulo,	1			74
Gothenburg,	3			186
Copenhagen,	5			276
Stockholm,	5			384
Naples,			17	60
Antwerp,	1			67
New York,	30			1,812
Hamburg,	1			56
St. Petersburg,	40			2,497
Rotterdam,	1			59
Venice,	2	10		141
Bar,	2			116
Shanghai,	4	10		254
Higo,	2	10		130

Potassium Chloride—

St. Vincent,	1 t.			£13
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Potassium Oxalate—

Boston,	6 t.	13 c.	3 q.	£168
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Potassium Sulphate—

New York,	16 c.			£8
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Salt—

Baltimore,	375 t.			
Benin,	17	17 c.		
Boston,	350			
B. Ayres,	40	3		
Conakry,	50			
Dunedin,	300			
Halifax,	15			
Jersey,	5			
Savannah,	40	3		
Montreal,	527	1		
N. Orleans,	250			
New York,	70			
Rouen,	10			
St. Johns, Nfld.,	5			
San Jose,	5			
Sydney,	200			
Warri,	17	17		
Algoa Bay,	5	18		
Charlotte Town,	139	16		
Gr. Bassam,	8	12		
Quebec,	800			
Sherbro,	100			
Trinidad,	17	7		

Saltcake—

Bombay,	5 t.			£15
Philadelphia,	75	10 c.		180

Saltpetre—

Kingston, Ont.,	5 c.			£5
Rio de Janeiro,	11	3 q.		14
Santos,	3 t.	11		80
Santiago de Cuba,	2	9		3

Sheep Dip—

Owen Sound,	2 t.	5 c.		£47
Cape Town,	4			126

Soap—

Alexandria,	4 cks.			
Amsterdam,		95 bxs.		
Bangkok,		80		
Barbadoes,		861		
Benin,		250		
B. Ayres,	3		2 cs.	
Cabenda,		100		
Calcutta,			229	
Cameroons,		40		
Cape Town,		224		
Gaboon,		30		
Jamaica,		110		
Landana,		100		
Savannah,		200		
Maceio,			1	
Montreal,			130	
New York,			2	
Rouen,			125	
Sierra Leone,			40	
Smyrna,			6	
Tientsin,			150	
Toronto,			750	
Trinidad,			540	
Valparaiso,			6	
Victoria, B.C.,			50	
Warri,			50	
Algoa Bay,			1,543	
Assinee,			20	
Belize,			60	2
Bluefields,			275	
Boca,			125	
Bombay,			1,125	
C. C. Castle,			40	4
Cape Town,			2,700	
Chama,			30	
Copenhagen,			30	
Corfu,			6	
Delagoa,			100	
E. London,			1,885	
Falmouth,			150	
Genoa,			175	
Gibraltar,			10	
Gr. Canary,			210	
Kingston, Ont.,			400	
Kurrachee,			850	
Madras,			10	
New Orleans,			200	
Palma,			50	
Parnahiba,			25	
Philadelphia,			20	
St. Johns, Nfld.,			170	
St. Kitts,			400	
San Fernando,			800	
Santos,			24	
Shanghai,			1,600	
Teneriffe,			224	
Trinidad,			950	

Soda Alkali—

Colbourne,	10 brls.			
Melbourne,	60			
Montreal,	100			
New York,	20			
Quebec,	25			
Toronto,	75			

Soda Ash—

Antwerp,	100 bgs.			
Baltimore,	4,899	378 cks.		
Boston,	1,110	505	25 brls	
B. Ayres,	59		250	
Malta,			9	
Montreal,			69	
New York,	12,720	1,457		
Philadelphia,	3,288	605		
Puerto Cabello,			8	4
Rio de Janeiro,			140	50
Varna,				150
Yokohama,			50	
Campos,			25	
Genoa,	300			
Lisbon,			10	
New Glasgow,			7	
Rotterdam,	250			
Samarang,			15	
San Francisco,			215	
Savannah,			20	
Sherbrooke,	96			
Smyrna,			200	
Sourabaya,			20	
Sydney,			5	
Sydney,			10	
Toronto,			15	
Trinidad,			12	
Waterloo, Ont.,			5	

Soda Crystals—

Barcelona,	12 cks.			
Bombay,	250 kgs.			
Kingston, Ont.,			45 brls.	
Montreal,	180	40	192	
Boston,			667	
B. Ayres,	30	70		
Calcutta,			14	

Coquimbo,		15
Gibraltar,		50
Melbourne,		
Philadelphia,	374	
St. Johns, Nfld.,	30	
Sourabaya,		175
Toronto,	50	120

White Lead—	
Bahia, 75 kgs.	
Boca, 10 cks.	
Cape Town, 6	
Zinc Chloride—	
Bordeaux, 10 l. 15 c.	£70
Bombay, 21 7 3 c.	359

HULL.

Week ending April 29th.

Ammonium Sulphate—	
Antwerp, 370 bgs.	
Dunkirk, 457	
Stettin, 200	
Benzol—	
Rotterdam, 25 cks.	
Bleaching Powder—	
Stettin, 104 cks.	
Caustic Soda—	
Antwerp, 37 dms.	
Rotterdam, 57	
Chemicals (otherwise undescribed)	
Antwerp, 1 cs. 15 cks.	
Amsterdam, 2 10	
Christiania, 4 4	
Copenhagen, 4 2 25 pks.	
Flushing, 10	
Gothenburg, 12 51 212 pks.	
Hamburg, 15 21 20	
Hango, 1	
Konigsberg, 3 3 5 pks.	
Rotterdam, 50 20	
Stettin, 95	
Cottonseed Oil—	
Antwerp, 600 c.	
Bremen, 50	
Gothenburg, 100	
Hamburg, 58	
Konigsberg, 200	
Rotterdam, 1,120	
Stettin, 1,080	
Dyestuffs (otherwise undescribed)	
Amsterdam, 2 cs.	
Asienud, 1	
Flushing, 16 dms.	
Gothenburg, 1 bl.	
Stettin, 6 cks. 60 bgs.	
Linseed Oil—	
Antwerp, 214 c.	
Bremen, 10	
Christiania, 77	
Christiania, 577	
Drontheim, 80	
Hamburg, 474	
Hango, 3	
Rotterdam, 261	
Mineral White—	
Antwerp, 100 bgs.	
Ochre—	
Konigsberg, 8 cks.	
Painters' Colours—	
Antwerp, 1 cs. 50 cks. 8 pks.	
Amsterdam, 2 dms.	
Bremen, 1 3	
Christiania, 72 pks.	
Christiania, 1 2 60 80	
Copenhagen, 1 2	
Dunkirk, 1 1	
Gothenburg, 1 3 1	
Hamburg, 9 45	
Rotterdam, 1 19 8	
Stettin, 55	
Soap—	
Antwerp, 30 cs.	
Christiania, 29	
Stettin, 97 1 ck.	
Tar—	
Amsterdam, 6 cks.	
Copenhagen, 26	
Varnish—	
Antwerp, 8 cs. 1 ck.	
Christiania, 2 1 43 8	
Copenhagen, 8 2	
Gothenburg, 1 4	
Rotterdam, 1 4	
Zinc Oxide—	
Flushing, 4 cks.	

GLASGOW.

Week ending May 4th.

Ammonium Chloride—	
Gaza, 2 l. 12 c.	£50
Ammonium Sulphate—	
Trinidad, 124 l. 7 c.	£1,578
Danzig, 91 12 1/4	1,140

Barium Chloride—	
Montreal, 3 t. 5 1/2 c.	£25. 108.
Bleaching Powder—	
Bombay, 5 t. 11 c.	£53
Borax Crystals—	
Lisbon, 1	£28
Caustic Soda—	
Russia, 103 t. 6 c.	£1,032
Coal Products—	
Allzarine Colours	
Montreal, 177. 158.	
Allzarine Oil	
Lisbon, 172	
Cresote Oil	
Huelva, 21 t. 3 c.	£32
Bordeaux, 31 8	400
Boston, 21 3	60
Pitch	
Bombay, 169	
Montreal, 220 t. 2 1/2 c.	330
La Rochelle, 227 4	1,208
Hamburg, 37 3 50 cks.	73
New York, 37 3	56
Tar	
Bombay, 11 t. 5 c.	£38
Singapore, 21 17 1/2	35
Bombay, 30	
Calcutta, 99	
Hamburg, 57	
Boston, 24 10 142 cks.	52
Colours—	
Calcutta, 1 t. 13 1/2 c.	£25
Copperas—	
Montreal, 21 t. 5 1/2 c.	£31
Cottonseed Oil—	
Fiume, 3 t. 17 1/2 c.	£71
Dyestuffs—	
Extracts	
Melbourne, 2 t. 7 1/2 c.	£114
Montreal, 5 14 1/4	169
"	161
Logwood	
Lisbon, 7 t. 10 1/2 c.	£54
Montreal, 30 16 1/4	228
Farina—	
Antwerp, 3 t. 8 1/2 c.	£40
Hydrochloric Acid—	
Trinidad, 8 c.	£43
Lead Acetate—	
Bombay, 2 t. 16 1/2 c.	£41. 158.
Montreal, 2 15 1/4	68
Linseed Oil—	
Bombay, 2 t. 1 c.	£57. 158.
Adelaide, 6 4 1/2	£132
Alexandria, 15 38	354
New York, 6 18	173
Montreal, 30 4 1/2	635
Chili, 4 13 1/4	119
Litharge—	
Montreal, 9 t. 6 1/2 c.	£120
Antwerp, 1 14	23
Magnesium Sulphate—	
Bombay, 5 t.	£23
Montreal, 12 14 c.	50
Manganese—	
Antwerp, 11 t. 10 c.	£37
Manganese Oxide—	
New York, 10 t. 2 c.	£95
Manure—	
Jamaica, 50 t.	£140
Trinidad, 10	342
New York, 10	105
Ochre—	
New York, 19 t. 10 1/4 c.	£313
Paint—	
Bombay, 5 t. 14 1/2 c.	£50
Calcutta, 1 1/4	£50. 108.
Adelaide, 4 3	698
Jamaica, 3 1/2	61
Colombo, 7 4	144
New York, 23 19 1/2	407
Chili, 5 11 1/2	58
Painters' Colours—	
Hong Kong, 5 t. 8 1/2 c.	£126
Huelva, 28	
Trinidad, 4	
Alexandria, 50	
Rotterdam, 8 cks.	40
Paraffin Wax	
Rouen, 1 t. 7 c.	£40
Bilbao, 1 19 1/2	50
France, 16 12 1/2	498
Italy, 1 18 1/4	58
Bombay, 2 9	75
Gothenburg, 1 9 1/2	21
Hamburg, 2 cs.	6
Peru, 18 1/2	28

Potassium Bichromate—	
Rouen, 15 t. 7 1/2 c.	£544
Hong Kong, 10 1/2	29
Japan, 5 1 1/2	202
France, 2 1 1/2	80
Melbourne, 1 6 1/4	66
Lisbon, 5 5	340
Antwerp, 5 16 1/4	224
Amsterdam, 15 cks.	180
Gothenburg, 11 13 1/4	455
Hamburg, 13	195
Rotterdam, 12	192
Soap—	
New York, 2 t. 13 1/2 c.	£39
Barbadoes, 14 1/4	20
Trinidad, 1 5	28
Chili, 7	67
Soda—	
Montreal, 19 t. 16 c.	£109
Bombay, 5	25
Soda Ash—	
New York, 50 t. 3 c.	£201
Sodium Bichromate—	
Rouen, 15 t. 4 c.	£480
France, 3 1 1/2	100
Antwerp, 32 6 1/2	1,052
Gothenburg, 5 1 1/2	165
Sodium Nitrate—	
Jamaica, 7 t. 12 1/2 c.	£24
Sodium Sulphate—	
Montreal, 20 t. 13 1/2 c.	£84
Sulphuric Acid—	
Bombay, 16 t. 19 c.	£84
Madras, 16 3/4	205
Tallow—	
Bilbao, 16 1/4 c.	£36
Turpentine—	
Alexandria, 2 t. 9 1/2 c.	£92
White Lead—	
Turkey, 6 t. 17 1/2 c.	£84
Adelaide, 1 1 1/2	23
Oporto, 6 16 1/2	85
Montreal, 10 2 1/4	171

TYNE.

Week ending April 29th.

Alkali—	
Hamburg, 1 t. 4 c.	
Antwerp, 6 9	
Christiania, 6 9	
Rotterdam, 13 11	
Drontheim, 24 1	
Copenhagen, 25 12	
Stockholm, 2 10	
Alumina Hydrate—	
Antwerp, 2 t. 2 c.	
Ammonia Alkali—	
Aalborg, 10 t.	
Ammonium Sulphate—	
Rotterdam, 50 t. 13 c.	
Antimony—	
Rotterdam, 1 t.	
Barium Hydrate—	
Danzig, 5 t. 4 c.	
Barytes—	
Hamburg, 109 t. 5 c.	
Copenhagen, 10	
Blanc Fixe—	
Copenhagen, 4 t.	
Bleaching Powder—	
Antwerp, 33 t. 9 c.	
Danzig, 125 9	
Christiania, 35 1	
Aalborg, 1 17	
Ghent, 2 5	
Rotterdam, 7 10	
Odessa, 77 14	
Gothenburg, 5 3	
Frederica, 13	
Copenhagen, 33 4	
Flensburg, 5 3	
Stockholm, 5 1	
Caustic Soda—	
Hamburg, 15 t. 4 c.	
Antwerp, 8 14	
Danzig, 10 3	
Bilbao, 53 2	
Ghent, 2 1	
Rotterdam, 17 1	
Odessa, 16 15	
Copenhagen, 2 12	
Seville, 29	
Stockholm, 22 12	

Copperas—	
Alexandria, 30 t. 8 c.	
Rotterdam, 5 6	
Copenhagen, 1	
Litharge—	
Danzig, 1 t. 10 c.	
Stockholm, 1 2	
Magnesia—	
Hamburg, 8 c.	
Copenhagen, 3 t.	
Paint—	
Hamburg, 1 t. 6 c.	
Antwerp, 1	
Bilbao, 2 1	
Arendal, 7	
Stockholm, 1 3	
Potassium Bichromate—	
Christiania, 16 c.	
Soda—	
Antwerp, 9 t. 18 c.	
Sarpsborg, 29	
Christiania, 10 1	
Aalborg, 10 7	
Ghent, 3 11	
Rotterdam, 9 10	
Nakskov, 27 6	
Svendborg, 10	
Copenhagen, 3 18	
Seville, 5 3	
Stockholm, 160 7	
Soda Ash—	
Antwerp, 5 t. 5 c.	
Danzig, 20 11	
Rotterdam, 10	
Odessa, 20 7	
Gothenburg, 48 14	
Stockholm, 40 9	
Sodium Hyposulphite—	
Odessa, 1 t. 1 c.	
Gothenburg, 1	
Sodium Sulphate—	
Gothenburg, 216 t. 2 c.	
Sulphur—	
Hamburg, 10 t.	
Arendal, 10	
Christiania, 35	
Rotterdam, 10	
Gothenburg, 50	
Roeskilde, 137	
Superphosphate—	
Christiania, 10 t.	
Tallow—	
Hamburg, 1 t. 2 c.	
White Lead—	
Hamburg, 1 t. 2 c.	
Stockholm, 2 12	

GOOLE.

Week ending April 19th.

Chemicals (otherwise undescribed)	
Antwerp, 10 cks.	
Ghent, 11 2 cs.	
Hamburg, 1 16 dms.	
Rotterdam, 49	
Coal Products (otherwise undescribed)	
Ghent, 16 cks. 2 dms.	
Hamburg, 54	
Rotterdam, 142	
Dyestuffs (otherwise undescribed)	
Ghent, 21 dms.	
Rotterdam, 3 cks.	
Manure—	
Dunkirk, 431 bgs.	
Hamburg, 84 1 ck.	
Pitch—	
Botlogne, 110 t.	
Dunkirk, 407	
GRIMSBY.	
Week ending April 22nd.	
Chemicals (otherwise undescribed)	
Dieppe, 8 cks. 162 pks. 66 bts.	
Hamburg, 3 cs.	
Antwerp, 4 cks.	
Coal Products (otherwise undescribed)	
Dieppe, 221 cks.	
Antwerp, 2	
Dyestuffs (otherwise undescribed)	
Dieppe, 4 cks. 32 pks.	

PRICES CURRENT.

WEDNESDAY, MAY 1901

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities in

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 10/6
Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1 3/4
Nitrous	"	0	0 1 3/4
Oxalic	nett	0	0 3
Phosphoric, 1750°	"	0	1 2 1/2
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
(free from arsenic, 145°)	"	1	5 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	"	0	0 11 1/2
Arsenic, white powdered	nett per ton	13	17 6
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferic	"	2	10 0
Aluminium	per lb.	0	4 0
Ammonia, Anhydrous	"	0	1 2
" 880=28°	per lb.	0	0 2 1/2
" =24°	"	0	0 1 3/4
" Carbonate	nett	0	0 3 3/4
" Muriate	per ton	20	0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
" Nitrate	per ton	39	0 0
" Phosphate	per lb.	0	0 10 1/2
" Sulphate (grey) London	per ton	11	15 0
(grey) Hull	"	11	15 0
Aniline Oil (pure)	per lb.	0	0 6 3/4
Aniline Salt	"	0	0 6 1/4
Antimony	per ton	45	10 0
" (tartar emetic)	per lb.	0	1 0
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	8	0 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 2
Benzol, 90 % nominal	per gallon	0	1 4
" 50/90	"	0	1 4
Carbolic Acid (crystallised 40°)	per lb.	0	0 7 1/4
(crude 60°)	per gallon	0	2 6
Creosote (ordinary)	"	0	0 1
(filtered for Lucigen light)	"	0	0 1 1/4
Crude Naphtha 30 % @ 120° C.	"	0	0 10
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	"	1	5 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 0
" Lucigen" and "Wells" Oils	"	0	0 1 1/4
Copper	per ton	44	10 0
" Sulphate	"	16	5 0
" Oxide (copper scales)	"	42	0 0
Glycerine (crude)	"	13	0 0
(distilled S.G. 1250°)	"	43	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	12 6
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	11	0 0
" Litharge Flake (ex ship)	"	13	0 0
" Acetate (white)	"	25	15 0
" brown	"	17	10 0
" Carbonat. (white lead) pure	"	20	0 0
" Nitrate	"	20	0 0

Lime, Acetate (brown)	per ton	1	
" (grey)	"	1	
Magnesium (ribbon and wire)	per oz.	1	
" Chloride (ex ship)	per ton	1	
" Carbonate	per cwt.	1	
" Hydrate	per ton	1	
" Sulphate (Epsom Salts)	per ton	1	
Manganese, Sulphate	per cwt.	1	
" Borate	per cwt.	1	
" Ore, 70 %	per ton	1	
Methylated Spirit, 61° O.P.	per gallon	1	
Naphtha (Wood), Solvent	"	1	
" Miscible, 60° O.P.	"	1	

Oils:—

Cotton-seed	per ton	22	
Linseed	"	20	
Lubricating, Scotch, 890°—895°	"	1	
Petroleum, Russian	per gallon	1	
" American	"	1	
Potassium (metal)	per oz.	1	
" Bichromate	nett per lb.	1	
" Carbonate, 90% (ex ship)	per ton	17	
" Chlorate	per lb.	1	
" Cyanide, 98%	"	1	
" Hydrate (Caustic Potash) 80/85 %	per ton	21	
" (Caustic Potash) 75/80 %	"	20	
" (Caustic Potash) 70/75 %	"	20	
" Nitrate (refined)	per cwt.	1	
" Permanganate	per cwt.	1	
" Prussiate Yellow	per lb.	1	
" Sulphate, 90 % (ex ship)	per ton	9	
" Muriate, 80 % (do.)	"	8	
Silver (metal)	per oz.	1	
" Nitrate	"	1	
Sodium (metal)	per lb.	1	
" Carb. (refined Soda-ash) 48 %	nett per ton	6	
" (Caustic Soda-ash) 48 %	"	4	
" (Carb. Soda-ash) 48 %	"	4	
" (Carb. Soda-ash) 58 %	"	3	
" (Soda Crystals)	"	3	
" Acetate (ex-ship)	"	10	
" Arseniate, 45 %	per lb.	11	
" Chlorate	per lb.	1	
" Borate (Borax)	nett, per ton	29	
" Bichromate	per lb.	1	
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10 ton	11	
" (74 % Caustic Soda)	"	10	
" (70 % Caustic Soda)	"	10	
" (60 % Caustic Soda)	"	10	
" (60 % Caustic Soda, cream) (f.o.b.)	10 ton	10	
" Bicarbonate	"	6	
" Hyposulphite	"	7	
" Manganate, 30%	"	10	
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	
" Nitrite, 98 %	per ton	27	
" Phosphate	"	15	
" Prussiate	per lb.	1	
" Silicate (glass)	per ton	5	
" (liquid, 100° Tw.)	"	4	
" Stannate, 40 %	per cwt.	5	
" Sulphate (Salt-cake)	per ton	1	
" (Glauber's Salts)	"	1	
" Sulphide	"	5	
" Sulphite	"	5	
Strontium Hydrate, 100%	"	1	
Sulphocyanide Ammonium, 95 %	per lb.	0	
" Barium, 95 %	"	0	
" Potassium	"	0	
Sulphur (Flowers)	per ton	8	
" (Roll Brimstone)	"	6	
" Brimstone: Best Quality	"	2	
Superphosphate of Lime (26 %)	"	2	
Tallow	"	51	
Tin (English Ingots)	"	96	
" Crystals	per lb.	0	
Zinc (Spelter)	per ton	15	
" Chloride (solution, 96° Tw.)	"	5	

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NOTED.—Situation by a young man in colour works. Could make or assist. Well up in vermilionettes, chomes, &c.—*Chemical Trade Journal* Office, Manchester.

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Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday** evening.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and Business Wants, and Specific Articles for Sale by Private Contract are taken in the *Chemical Trade Journal* at the following rates:—

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Advertisements, Announcements in the Directory Columns, and all Advertisements, when prepaid, are charged at the Tariff rates which will be forwarded on request.

Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE EMPLOYERS' LIABILITY BILL.

ON Monday last there was an interesting discussion on this measure while it was being considered by the House of Commons Standing Committee on Law. In the course of the discussion there were a great many proposals and suggestions put forward, mainly with a view of extending the scope of the Bill, and affording greater facilities for the employer to obtain compensation.

Most of the suggestions, however, had no direct interest for the chemical trade, as they chiefly dealt with the inclusion of shopmen and others within the scope of the Bill. A rather important suggestion was propounded by Mr. Hunter, who wished workmen to be compensated in the case of accident or death according to a fixed scale, to be set forth in the schedule, provided of course that the injury was not due to wilful negligence on the part of the injured. An addition which is more likely to affect our readers is that of Mr. Bousfield, which, if adopted, would, no doubt, be constantly used for "getting at" the chemical industry, more particularly the alkali trade. This proposed new sub-section reads as follows:—"Where after the commencement of this Act in any employment injurious to health in which the risk of injury to health can be mitigated or removed by the use of reasonable precaution the death or temporary or permanent disablement of a workman is caused by the neglect of such reasonable precautions, the workman, or in case of death his representatives, shall have the same right to compensation and remedies against the employer as in other cases of personal injury due to negligence." It is satisfactory to learn that the Home Secretary considers the present law is sufficiently clear on this point, and on his promising to give the subject further consideration the amendment was withdrawn.

A NEEDLESS EXCEPTION.

In another column will be found an account of a discussion which took place recently at a meeting of the St. Helens Water Committee. There seems to be some dissatisfaction in that town owing to the water softening works having been opened, and ostensibly at work, and yet the water supplied to the town is not appreciably improved.

There seem to have been some mechanical difficulties to contend with, the most important of which, as far as we can see, being the trouble experienced in maintaining the strength of the clear solution of calcium hydrate which is used to soften the water. It is hard to see how a consistent if only slight improvement in the water can be expected till this is remedied. The unfortunate part of the question is that since only the water before and after treatment at the works has been tested, it is impossible to satisfy the inquiries about the actual supply to the town. It is strange and a pity that the St. Helens Corporation have departed from the golden exception they make in testing their gas, by having had no

tests made of the water on a similar footing. In regard to gas, we have time over time cried out against the tests being made at the works, and in this particular matter St. Helens is a pleasing exception, the gas being tested at the Town Hall. As the St. Helens paper puts it, it is possible to tap a "special brew" for the benefit of the tester, apart from the fact that the quality of the gas or the water, as the case may be, at the works itself is no good as an indication of the kind of water or gas which the ratepayers have to consume and pay for. It was decided by the Water Committee to place the testing of the water on a footing as just and generally satisfactory as that adopted for the gas of the town.

THE "LABOUR GAZETTE."

This month the new journal of the labour department of the Board of Trade first saw light. This organ, which will be published monthly, will enable employers to survey the general position of the labour market from month to month as it contains statistics showing the changes in wages and hours, and also the disputes which are going on. There is a full account of the Hull strike as far as it has gone.

There are also reports on the labour question, from the principal labour centres abroad which contain much useful information, while there is a detailed list of the prosecutions under the Factory and Workshop Acts during the month of April; showing the number of prosecutions, convictions, cases withdrawn or dismissed and the total amount of the penalties inflicted where convictions were made. The number in fact is full of good, useful information.

THE ST. HELENS WATER SOFTENING WORKS.

AT a recent meeting of the St. Helens Water Committee, speaking about the new water softening works, Mr. Alderman J. C. Gamble said: We have a new process going on at Brown Edge, and I think we ought to have some report about it.

Mr. Martin: I expected to hear a report myself on the new softening process.

Alderman J. C. Gamble: I expected to hear something about it, as it has been going on for some time.

Mr. Martin: There have been very great complaints in the town.

The Engineer (Mr. D. M. F. Gaskin): The Collins Green water is being softened now.

Alderman J. C. Gamble: We ought to know what is going on, and ought to have a full report on it.

The Engineer: The process was commenced shortly after the Mayor turned the steam on. We had tried it three or four days beforehand, and the outflow from the filters was perfectly clear. Shortly after the opening something went wrong, and the water became milky.

Alderman J. C. Gamble: What was the something?

The Engineer: I found out the reason afterwards that the filter cloths had not been put on properly as they are now, and the consequence was that the water, instead of passing through the filter cloths, passed through where they had got torn on the edges. One cause of this was probably that the amount of air which came in with the water from the reservoir was sufficient to bulge out the filter cloths, which gave way where there was a weakness. That is not likely to occur again. We have now a record of every cloth that is put on, and of anything that is wrong. I hope we have got over our troubles in that respect, and that we shall be able to give the softened water to the town.

Alderman J. C. Gamble said he understood that everyone of the cloths in the filters were bad.

The Engineer: One-half of them were.

Alderman J. C. Gamble: Who is going to pay the expense of putting the others on?

The Engineer: The contractors are putting them on at their own expense.

Alderman J. C. Gamble: They are doing it very slowly.

The Engineer: But they are doing it more effectively now.

Alderman J. C. Gamble: We are now doing Collins Green Water. What is the result?

The Engineer? Dr. Robertson is here? he made a test a few days ago. I think the hardness was 24 degrees, but he got it down to eight or nine degrees.

Dr. Robertson: Ten degrees. It will be wise to make it 10 degrees instead of 10.

Alderman D. Gamble: Is it permanent or temporary?

Dr. Robertson: Some permanent and some temporary. On the day I examined it the filtering was very good indeed. Previously there was a lot of chalk passing into the water.

Alderman J. C. Gamble: How often is this hardness tested?

Dr. Robertson: There has been no regularity about the testing because the works have been rather irregular. Collins Green has been running in there, and I don't think it is necessary.

Alderman J. C. Gamble: We want the experiments made to find out what we can do with Collins Green water. Otherwise we are wasting our time on experiments.

Dr. Robertson: I think you will pretty easily find that you can bring it down to seven degrees very safely. I think about eleven degrees you will find it down to to-day.

Alderman J. C. Gamble: Are we satisfied that is all we can do? If so, we had better go on with one of the other waters at once.

Dr. Robertson: You cannot always get the lime water at the strength. The only way to get it is to test the water as it is in the mixer, to see whether enough lime has been added to it. It has not been enough it is easy to turn on enough until you find it leaving in two degrees of permanent hardness. I have written instructions to the men as to how to make these tests.

Alderman J. C. Gamble: How many tests have been made of Collins Green water?

Dr. Robertson: I have only made two tests. I think you can bring it down to ten, and that would be very satisfactory for Collins Green water. I don't think you can get it with much lower than that. That is allowing a good margin of safety. If it is the wish of the committee to see how low we can get it, I will go up twice a day, and let you know the result.

Alderman D. Gamble: I think we might satisfy ourselves with what we might safely go.

The Mayor: We should have a test of what we are actually getting into the town.

It was agreed that Dr. Robertson should make the tests and

THE MANUFACTURE OF MAGNESIUM

SPECIALLY CONTRIBUTED.

(Continued from page 304)

II. Preparation of the Metal.—The decomposition of the magnesium is carried out in very strong wrought-iron crucible of a thickness of two inches or more. About 100 pounds of double chloride is placed in the bottom of one of these crucibles, 16 pounds of metallic sodium spread over the top. A strong iron lid, having a small hole in the centre, is then luted on the lid with a little damp plumbago and clay, and fastened down with iron clamps and wedges. The crucible and its contents are placed in a fire and completely surrounded with hot coke. The sodium begins as soon as the temperature rises to its melting point. After a slight explosion or noise is heard, the temperature is gradually raised till it reaches dull redness. Owing to the volatile nature of magnesium, a high temperature must be avoided only to obviate the loss of metal, but also to prevent internal explosion. After the lapse of an hour or so, by which time the operation is finished, the crucible is removed from the fireplace, and its contents, after being stirred with a clean iron rod, are poured into a mould. Because of its extreme lightness, the metal does not solidify in a solid cake at the bottom of the mould; but is found in the form of globules or buttons of varying size, interspersed throughout the mass. When cold, the whole is broken up and placed in a trough of water to remove all soluble salts. The insoluble matter which remains behind consists, mainly, of metallic magnesium, and is dried thoroughly washing with water. The globules of metal then undergo the process of distillation after the following manner:—

III. Purification of the Metal by Distillation.—The large iron vessel used for this purpose was invented by Sonstadt. It is well known. Briefly stated, it may be described as a receiver, consisting of two wrought-iron vessels superimposed on each other and joined together by a wrought-iron tube, one end of which is fixed to the lid of the lower vessel, whilst the other end is fixed to the bottom of the upper vessel, passing through its body to within two or three inches of the lid. The bottom of the receiver is moveable, whilst the still proper is provided with a strong iron lid held down with strong iron clamps, the joint being packed with clay. The metallic globules are placed within and around the

structure of magnesium wire and ribbon for photographic purposes is much more tedious. The metal employed for is twice distilled, in order to obtain it soft and pure. The consists of a strong steel cylinder, into one end of which dies may be fixed, having in them orifices of different sounding in fact to the size or diameter of the wire. A very accurately fitting piston, actuated by hydraulic into this cylinder. The stick of magnesium is placed in the cylinder, and the whole arrangement heated to dull redness. A series of blowpipes playing upon it. When the magnesium, or melts, the piston exerts a pressure of from five to six inches upon it, and it issues from the apparatus through the die end of the cylinder, in the form of a fine thread. It is then wound on a reel, and is in this form converted into a very simple and ingenious method. The wire is simply drawn through hollow rollers, kept hot by a jet of flame impinging on their inner surface. The pressure and temperature applied is such that the thickness of the wire to be pressed, and, of course, with the thickness of the wire to be made.

rate has, in fact, already presented—as a result of their mind—3,000 M. to the churches of both communities at which they have received the most enthusiastic thanks.

Herr Dr. Clemm is inspired to speak to us of the "last cow," in a most spirited manner; and Herr Dr. Hecht, the legal adviser of the aniline works, of the danger to house and home, if, for the sake of a paltry 60 millions (the sum required for the new military proposals), we expose our beloved fatherland to its ancient enemy. You, gentlemen, with 27 per cent. dividends, are, no doubt, right to speak of your fatherland, and of house and home; for it is still a long journey to *your* last penny. Your class always manages to arrange it so that the last penny and the last cow of the working man is lost to him, even without the aid of the Frenchman.

DOUGLAS' GREEN.—Barium chromate is precipitated by adding to a solution of barium chromate a sufficiency of a soluble chromate to effect complete separation; to the lemon yellow chromate is added 20 per cent. of strong sulphuric acid, which produces a deep red by the liberation of chromic acid; the mass is then ground and heated to redness, when it becomes green.

Official Memoranda.

(From the Board of Trade Journal.)

THE CUSTOMS TARIFF OF TASMANIA.

The following is an abstract of the above tariff showing the import duties leviable on chemical products under this tariff:—

ARTICLES.	Rates of Duty now Leviable.
Acid, tartaric	Per lb. £ s. d. 0 0 4
Do sulphuric	Per cwt. 0 2 6
Do citric	Per lb. 0 0 4
Do muratic	Per cwt. 0 2 6
Do nitric	" 0 2 6
Do carbolic	" 10% ad val.
Do acetic, containing not more than 33% of acidity	Per lb. or pint 0 0 2
For every extra 10% or part thereof of acidity	" 0 0 1
Arsenic, crude	" 5% ad val.
Candles	Per lb. 0 0 2
Cements, mineral	Per cwt. 0 0 9
Carbonate of soda	Per lb. 0 0 1
Glucose	Per cwt. 0 6 0
Naphtha	Per gallon 0 0 6
Oil, kerosene	" 0 0 6
Oils (not o.e.)	" 0 1 3
" medicinal and perfumed	" 20% ad val.
Paints, all kinds	Per lb. 0 0 0½
Paper	" 5% ad val.
Quicksilver	Do.
Salt	Per cwt. 0 1 6
Soap	Per lb. 0 0 1
" perfumed or fancy	" 0 0 3
Soda crystals	" 0 0 0½
Spirits of tar	Per gallon 0 0 6
Turpentine	" 0 1 0
Varnish and polish (not o.e.)	" 0 1 6
Whitening	Per cwt. 0 0 9

The following is an abstract of the list of exemptions:—

Bluestone	Felspar
Carbolic Powder	Manganese
Caustic Soda	Oxide of cobalt
Dyewoods and dyestuffs for manufacturing purposes	Resin salt
Creosote (crude)	Silicate of soda
Carbolate of lime	Soldering fluid
Chloride of lime	Soda ash
Manures	Stearine
Myrabolams	Sumac
Oil cake	Tannin
Paraffin and mineral wax	Tar
Phosphorus	Valonia
Pitch	Litharge
Potash and pearl ash	Copperas

UNDEVELOPED LAND IN THE ARGENTINE REPUBLIC.

Writing upon the subject of the resources of the Neuquen territory the *Buenos Ayres Standard* states:—

The Neuquen stretches to the south of Mendoza, taking in the Cordillera as far as the legendary Lake Nahuel Huapi. The rivers Colorado, Limay, and Neuquen encircle the territory, which covers an area of 41,000 square miles. Neuquen presents a diversified aspect. It contains huge mountains, fertile valleys, extensive woodlands, and immense grass-covered table-lands. Hundreds of streams, fed by the thawing snows of the Andes, flow through the territory. Forests of magnificent oaks and tall pines cover large tracts. The apple tree grows wild, and from its fruit the settlers make a delicious beverage, known as "chicha," and in the plain the wild strawberry abounds. The grass never dies out in Neuquen and there is plenty of it for the herds that are fattened on it. The soil is very fertile, the yield of wheat being 25-fold. Neuquen is destined to become the grazing-ground of the cattle driven over to Chili, for the vine is rapidly covering San Juan and Mendoza, and the alfalfa plantations are gradually moving southward.

The forests of oak, pine and cypress supply excellent timber. The posts made from the last-named have been found to hold out for a

considerable length of time. As yet only a very slight effort has been made to turn to account the immense wealth of the forests of Neuquen. And yet there is every facility for developing the trade, for the supply of a cheap water carriage and all the machinery required is bought in Chili. Last year the first cargo of wood was shipped. It was floated down by the Arroyo Codihue to the Rio Arroyo, Neuquen and finally the Rio Negro to Patagonia, from where it was shipped with facility to Buenos Ayres. The Neuquen possesses, moreover, untold mineral wealth. Coal is seen on the very surface of the ground. The coal is used by the settlers, and samples sent to Buenos Ayres were reported on telegraphically as follows:—"Good quality, it is engine, forge, and gas." There are samples of it in the Mining Department in Buenos Ayres. Then silver, copper, and iron are abundant. No less than four petroleum springs have been found. Nitrate, chloride of sodium, sulphur, alum, lime, and marble are found in great abundance.

The population of the Neuquen is 20,000 to 25,000 souls, almost exclusively Chilians. A brisk trade is kept up with Chili, as there are a number of easy passes across the Andes. When the passes are closed by the snow, the settlers trade with Mendoza and Lima. There is a high road from General Acha to Chasmalal, which is the capital of Neuquen, but this road has one serious drawback. It has a "travesia" of 120 miles, that is, there is no water in that extent. Wells were dug at intervals of five leagues, a brisk trade was soon spring up.

The Rio Limay is a navigable river. Its confluence with the Neuquen forms the Rio Negro. As soon as steamers commence plying on the Minay, the Neuquen territory will begin to show signs of commercial vitality.

Three years ago several French engineers came to the Neuquen to survey the proposed "Interoceanic Railway" from the Pampa Grande to Talcahuano in Chili via Antuco. Such a line would be the most important undertaking in South America. But the enterprise has been through owing to the demands of the concessionaires.

OLIVE OIL PRODUCTION IN ITALY.

It appears from a recent report by the French Consul at Palermo that the production of olive oil in Italy in the year 1891-2 amounted to 2,739,554 hectolitres (hectolitre = 22 Imperial gallons) as compared with 3,086,119 hectolitres in the preceding year, that is, a diminution of 348,565 hectolitres. Notwithstanding this diminution the yield for last year is considered a very fair one.

The olive tree is cultivated in 3,124 communes, out of a total of 8,253 communes. It does not exist in Piedmont, and is very scarce in Lombardy, Venetia, and Emilia, the prevalence of the north-west winds rendering the atmosphere too cold for its cultivation in these districts.

The province of Porto-Maurizio is one which, in proportion to area, possesses the greatest number of olive trees, and after this come Lecce, Reggio di Calabria, and Chieti. The provinces in which the yield of the olive tree has been greatest in proportion to area cultivated are those of Sicily, and in particular of Catania, Caltanissetta, and Syracuse. The largest absolute production, that is to say, taking into account the proportion of the trees to the area, was for the year 1891-92 in the provinces of Lecce, Bari, Calabria, Catania, Rome, and Messina, and the smallest in Bergamo, Vicenza, Como, and Padua.

The average yield of oil per hectare (hectare = 2.47 acres) was 2.66 hectolitres, or a diminution of 0.39 hectolitres as compared with the preceding year. The average yield per hectare, however, is variable, as it is affected not only by conditions of locality, but also by the quality of the olives which are cultivated, but also by the method of cultivation.

The quantity of fruit dried or salted is estimated at 40,000 tons.

BUTTER ADULTERATION IN NORTHERN FRANCE.

In his report on the navigation, trade, etc., of Havre for the year 1892, Mr. F. Bernal, Her Majesty's Consul-General at that port, states:—

With regard to the long-standing and vexatious question of adulteration of the Normandy butter, I can only report again, as I have done year, that, like the poor, it is always with us, and there appears no diminution of the practice, and it is carried on in defiance of laws framed to repress it, and in the face of the authorities, who are unable to cope with it; the practice appears to be confined to the middlemen and small dealers.

The export of Normandy butter to the United Kingdom for the year 1889 was estimated at 77,000,000 francs, falling in 1890 to 70,000,000 fr., though in the year 1891 there was a slight increase. South America and the French colonies are always ready to take the trade, the finest and purest Normandy butter being reserved for the Paris markets.

the oil forces its way through the baskets and flows down the exterior surface into a receptacle placed below the press for the purpose of receiving it. Often before the pressing is terminated the action of the press has to be stopped, owing to some of the scourtins being pressed more on one side than on the other, so that they have to be readjusted before the operation can be continued. Care, moreover, has to be taken not to exceed a pressure of about 250 kilos. per square centimetre, equal, roughly, to 31½ cwts. per square inch, as the scourtins will burst if strained to a higher extent. The methods adopted for the extraction of the oils from the various seeds, nuts, &c., are as follows:—

SESAME.

Levant sesame.—This is subjected to three pressings, the seed being cold in the first two, but heated for the third, in order to allow of more oil being extracted. Before being pressed at all the seed is thoroughly triturated, to allow the oil to come away more readily under pressure. In the first pressing from 30 to 32 per cent. of oil is obtained, and this oil is sold at from 90 to 96 francs per 100 kilos. for table consumption. The seed is now thoroughly triturated again, a little water—about one or two per cent.—being added, and, being again put under pressure, yields from nine to ten per cent. of oil of a quality slightly inferior to the first, but which is still quite good enough for eating purposes. The price of this oil varies from 70 to 73 francs per 100 kilos. After being removed from the press the seed is once more thoroughly triturated, and from two to four per cent. of water is added to it, after which it is heated to a temperature of from 70° to 80° C. The oil that now comes away is of very inferior quality to that obtained by the first two pressings, and in quantity is from 10 to 11 per cent. of the weight of seed originally put into the press. This oil is sold at from 49 to 51 francs per 100 kilos, and is used in the manufacture of soap. The residuum is made into oil cakes, which are used for feeding cattle, and are sold at from 12 to 13 francs per 100 kilos. The cost of transporting this seed to Marseilles is from 10 to 15 francs per ton of 1,000 kilos.

Indian and African sesame.—This seed, like the sesame from the Levant, is subjected to three pressings, in the first two of which the seed is cold and in the third heated. The oil yielded in the first pressing is not so great as in the former quality of seed, the amount being from 27 to 28 per cent. of the weight of seed pressed; and it is greatly inferior in quality, being sold at from 62 to 75 francs per 100 kilos. It is used, according to quality, either for table purposes or for lamp oil. After being triturated again, and having from one to two per cent. of water added, the seed is again pressed, and yields from nine to ten per cent. of oil of a quality slightly inferior to the first, and which, like it, is destined either for eating purposes or lamp consumption. The oil is sold at prices ranging from 60 to 62 francs per 100 kilos.

SHELLED PEANUTS.

These nuts are subjected to two pressings, the seed being first triturated and then heated to between 70° and 80° C. It is to be noted that the treatment of this product differs from that to which the sesame is subjected, in that peanuts are not pressed cold at all, but have to be heated even for the first pressing.

The yield of oil arising from the first pressing is about 50 per cent. of the seed crushed. It is used in the manufacture of soap, and also for lubricating purposes, and is sold at the rate of 50 francs per 100 kilos.

POPPY SEED.

Poppy seed is pressed twice cold and then heated and pressed once more. The seed is first thoroughly triturated, and yields in the first pressing 22 per cent. of its weight in oil. This oil is worth 72 francs per 100 kilos., and is used for table purposes and also to a very considerable extent in the manufacture of fine paints. After being crushed a second time and having one or two per cent. of water added, the seed is pressed again, when 10 per cent. more oil is obtained, which is used, like the first, for table purposes and for making oil paints, and also for burning. This oil sells at 60 francs per 100 kilos. The seed being crushed again, mixed with about three per cent. of its weight of water and heated to a temperature of from 70° to 80° C., yields in the third pressing seven per cent. of its weight in oil, which is used almost exclusively in the manufacture of soap, and is sold at 50 francs per 100 kilos.

The residuum is made into oil cake and is sold at 11 to 11.50 francs per 100 kilos. This oil cake is used for fertilizing purposes. The cost of shipping this seed to Marseilles is from 30 to 35 francs per ton of 1,000 kilos.

LINSEED.

Linseed is subjected to two pressings, in the first of which the seed is cold and in the second heated. The yield of oil in the first pressing is 22 per cent. of the weight of the seed, and the oil obtained is used for table purposes, being sold at from 62 to 63 francs per 100 kilos. After being triturated a second time—it having been triturated as usual before the first pressing—the seed receives the usual addition of about two per cent. of its weight of water, and is heated to a temperature of

from 70° to 80° C., and is afterwards again placed in the press. It yields ten per cent. of its weight in oil of an inferior quality which is chiefly used in the manufacture of soap. The residuum is made into oil cakes, which are of superior quality to those produced in the pressing of any other kind of seed. They are used for feeding cattle, and are sold at from 16 to 17 francs per 100 kilos. The cost of shipping linseed to Marseilles is from 30 to 35 francs per ton of 1,000 kilos.

CULTIVATED RAPE SEED.

This seed is pressed twice, once cold and once heated. In the first place thoroughly triturated. The first pressing affords 22 per cent. of oil, which is sold at the rate of 65 francs per 100 kilos., for table purposes. After being mixed with from two to four per cent. of water and heated to 70° or 80° C., 12 or 13 per cent. of oil of an inferior quality is extracted, which is used in the manufacture of soap, and is sold at 50 francs per 100 kilos.

Oil cake is made from the residuum, and is sold for feeding cattle at 10 francs per 100 kilos. The cost of importing rape seed at Marseilles from the countries where it is grown is from 30 to 35 francs per 1,000 kilos.

WILD RAPE SEED.

Wild rape seed is triturated and heated before being pressed. The first pressing results in a yield of about 14 per cent. of oil, which is sold for mixing purposes at the rate of 53 to 54 francs per 100 kilos. The second pressing, after the usual trituration, adds to four per cent. of water, and reheating to 70° or 80° C., gives eight per cent. of oil in addition, which, being of slightly inferior quality to the oil first obtained, is sold at 50 francs per 100 kilos, and is used for making soap.

As in the case of most of the other oils mentioned in this article, the residuum goes to make oil cake, which is used as a fertilizer.

This seed does not cost so much for transportation as those mentioned (sesame from the Levant excepted). It is shipped to Marseilles at a cost varying between 20 and 25 francs per ton of 1,000 kilos.

CASTOR BEANS.

Castor beans are subjected to two pressings, after being thoroughly triturated. In the first pressing the seed is cold, and the yield obtained is about thirty per cent. of the weight of seed. This oil, which is used extensively for medicinal purposes, is at an average price of sixty-five francs per 100 kilograms. The seed is then triturated, watered, and heated, as described above, and yields a second pressing from eight to ten per cent. of an oil inferior to the first obtained, and is sold at fifty-eight francs per 100 kilograms. This oil is generally used for lubricating machinery.

The residuum is formed into oil cakes, which are used for feeding cattle, and are sold at from 9 to 9.50 francs per 100 kilograms.

The cost of transportation to Marseilles is from thirty to thirty-five francs per ton of 1,000 kilograms.

EGYPTIAN COTTON SEED.

This seed is thoroughly triturated and then pressed twice. In the first pressing it is cold, and it yields from ten to twelve per cent. weight in oil. This oil is destined for table purposes, and is used for mixing with olive oil, as it is perfectly tasteless; and for reason many people also avail themselves of it for frying. It is sold at from 80 to 90 francs per 100 kilos.

The oil—from eight to ten per cent. of the seed in quantity—in the second pressing, after the usual regrinding, watered, and heated, is of very inferior quality, and does not bring a high price, about fifty francs per 100 kilograms. It is out of the question to use this oil for eating purposes (nor can any of the *huiles à faire* oils obtained after the seed has been heated, be used for this purpose), and it is accordingly utilized for the manufacture of soap.

The residuum is made into oil cakes, which are sold at 10 francs per 100 kilos, for feeding cattle and for fertilizing purposes.

The charges for the importation of Egyptian cotton seed to Marseilles are very low, not being above ten to eleven francs per 1,000 kilos.

NIGER.

Niger is first triturated and then pressed cold. The yield is 18 per cent. of the weight of the seed, and the oil so obtained is at an average price of about 65 francs per 100 kilos, for mixing purposes.

After being reground, watered, and heated as before described, a further yield of 14 per cent. is obtained, the oil which comes from this second pressing being used for soap making, for which purpose it is sold at 50 francs per 100 kilos.

The residuum, as in the case of the other seeds, is made into oil cakes, which are sold as fertilizers for about 9½ francs per 100 kilos.

PULGHERIA.

After trituration it is heated before being pressed. The first pressing results in a yield of 20 per cent. of oil, which is used in the manufacture of soap. After being triturated again, and then watered and heated

to 12 per cent. more oil is obtained, which is nearly as good as that, and is destined for the same use. The cost of the oil of the first pressing is 53 francs, and that of the second from 52 to 53 francs per 100 kilos.

It is noticed that when seed is not pressed cold at all, but is pressed at both the first and second pressings, the values of the oils obtained from both these are nearly the same.

The residuum is made into oil cakes, which are used as a fertilizer.

COCOANUTS.

Cocoanuts are pressed twice, being heated and triturated for each pressing. The total yield of oil is from 62 to 64 per cent., and it is used for soap making at a cost of from 45 to 48 francs per 100 kilos. The residuum is made into oil cakes, which are sold as food for pigs at a cost of 11 to 13 francs per 100 kilos.

PALM NUTS.

Palm nuts are pressed twice, being triturated and heated for each pressing. The total yield is from 38 to 42 per cent. of the weight of the nuts pressed, and the oil is sold at 50 francs per 100 kilos., and is used solely in the manufacture of soaps.

The residuum is made into oil cakes of an inferior quality, which are sold as food for pigs.

MOWRAH.

Mowrah seed is treated with two pressings, and has to be triturated and heated each time before being pressed. The total quantity of oil obtained is from 37 to 41 per cent. of the weight of seed pressed, and is sold at the rate of 55 to 60 francs per 100 kilos, for the manufacture of soap.

The residuum is made into oil cakes, which are of a poor quality, and are sold at 3 to 4 francs per 100 kilos., for manure.

THE GAS SUPPLY OF LONDON.

The quality of the gas supplied to the City of London for the week ending May 6, 1893, was fairly good. According to the report of W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed three deficiencies in illuminating, two against the Metropolitan Gas Co., and one against the Commercial Gas Co., which was 15.2 candles only. The following figures have been taken from the report, and show the average composition of the gas as analyzed on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Metropolitan Gas Co.	14	16.37	10.52	0.26	Nil.
Commercial Gas Co.	6	16.35	11.21	0.50	Nil.
Local Gas Co.	2	16.15	7.75	0.25	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

Correspondence.

We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

We are already suited to your requirements. We were afraid you had not got it. We await your reply. Thanks for explanation. Your answer has been forwarded to our client. The matter has now been put right. It acts as a good disinfectant, but it is not identical with the preparation mentioned. We should think 8 lbs. would do. The state of sodium is employed almost without exception.

MOULDING NAPHTHALENE.

(To the Editor of the Chemical Trade Journal.)

I should consider it a great favour if you would kindly inform me through your paper how naphthalene is moulded into sticks for disinfecting powder? Also what is a suitable absorbent for carbolic acid for disinfecting powder? Plaster of Paris is too heavy.—Yours, H.E.

Trade Notes.

PREPARATION OF EXPLOSIVES—A patent has been obtained for preparing explosives by coating finely-divided sulphur with a hydrocarbon, which is solid at ordinary temperatures, but has its melting point below that of sulphur. Oxygen, bearing salts in a state of fine division, are then added and the mixture agitated. The powder thus obtained is moistened with water, which renders it safer and increases its explosiveness.

VALUABLE BEQUESTS FOR AN AGRICULTURAL SCHOOL—The will of Mr. T. H. Adams has been proved, by which he has left his real and personal estate for the purpose of teaching practical and theoretical agriculture to men and youths, and dairying, housekeeping, and other subjects to women and girls, either by lectures or by establishing schools in certain places named. It is stated that the total amount available will exceed £70,000.

THE POISONOUS PRINCIPLE OF THE YEW—Touching this point, which led to some discussion in the *Times* last year, to which reference was made in the *Journal* (No. 270), four papers have been contributed to the Journal of the Royal Agricultural Society. They do not throw much light upon the subject, however, which still remains environed with much that is conjectured. Dr. Munro considers, after further experiment, that taxine is probably the poisonous constituent, but entertains a doubt as to whether any has yet been obtained in a pure state.

FINE OF £5. FOR ADULTERATING MILK—At the Salford Police Court recently a farmer in North Wales was summoned for selling adulterated milk. A sample was taken by an inspector on arrival at Seedley Station, where it was delivered for the supply of the Daisy Bank Dairy Company, Eccles New Road, Salford. The sample was submitted to Mr. J. Carter Bell, the borough analyst, who certified that it was adulterated with 12 per cent. of added water. On the defendant's cans was a label bearing the words, "New milk, containing the whole of the natural fat." Evidence having been given by Inspector Rider, the Stipendiary (Mr. J. Makinson) fined the defendant £5. and costs.

ST. HELENS AND ITS SMOKE—According to recent discussions on the smoke nuisance, there seems to be as much, if not more harm done with household smoke than with that which emanates from a works stack. At St. Helens, during 1892, there were 40 cases out of 151 observations in which black smoke was emitted. This is made a point in favour of greater improvement by the Medical officer of Health in his report. Of course it would be nice to have no smoke at all, but when one bears in mind the statement in the annual report of the chief inspector of alkali works in 1891, that about 1,000,000 tons of coal are burned annually in St. Helens, with its small area, while only one-fourth more than this is burned in the whole of London, with its large area, we do not think the record is such a bad one.

DANGEROUS EMPLOYMENTS—In addition to the committee recently formed to inquire into the dangers of the manufacture of white lead, the Home Secretary (Mr. Asquith) has appointed two new committees, one to inquire into the manufacture of china and earthenware, and the other into chemical works. On the former committee the following gentlemen serve:—Captain May, of Leeds, and Mr. W. Dawkins Cramp, of Birmingham, two of Her Majesty's superintending inspectors of factories; Mr. J. H. Walmsley, Her Majesty's inspector of factories, Stoke-upon-Trent; together with Dr. Arlidge, Dr. Spunton, and Mr. A. P. Lawrie, of London, as experts. Mr. Cramp will act as secretary. The Chemical Committee will consist of Mr. A. E. Fletcher, Her Majesty's chief inspector of alkali works; Mr. Henderson, the senior superintending inspector of factories, London; Mr. Richmond, Her Majesty's inspector of factories for the Liverpool district; and Dr. O'Neil and Professor P. A. Simpson, of Glasgow. Mr. Richmond will act as secretary.

THE DISPOSAL OF BROWNHILLS SEWAGE—The Brownhills Local Board have for a long time been in difficulties with regard to the sewerage and sewage disposal of their districts of Walsall Wood, Shelfield, High Heath, and Clayhanger, and in the latter part of the preceding year they selected four engineers to submit schemes in competition from a large number of applicants. They have now decided on carrying out the scheme submitted by Mr. H. Bertram Nichols, of Corporation Street, Birmingham, and at a recent meeting of the Local Board, when Mr. Nichols attended, he was appointed engineer of the works. It is contemplated to provide for future requirements at the outfall, and the expenditure is estimated at about £9,600. The existing sewage works for the Brownhills district are not proposed to be interfered with at present, but provision is made in the scheme for the absorption of the district in the future when necessary. By means of the scheme proposed the whole of the sewage in the Local Board area can be brought by gravitation to one outfall, and there treated by chemical precipitation in tanks, and subsequent filtration through polarite and land filtration beds.

THE OAKBANK OIL CO., LTD.—The eighth annual general meeting of this company was held on Wednesday, May 17, 1893, at 200, Buchanan Street, Glasgow, at 12 noon. The directors in their report state that after providing for interest on loans, cost of maintenance and repairs, and all other charges, the amount at the credit of profit and loss account is £2,563. 10s. 11d. From this sum falls to be deducted the debit balance of £1,623. 7s. 10d. brought forward from last year, leaving a credit balance amounting to £940. 3s. 1d., which the directors recommend to be carried forward. The expectations of the directors in regard to profit for the year have not been realised, owing to the unprecedented depreciation in the value of the products. It is felt that values are not likely further to decrease; the low prices are encouraging and developing consumption of such a nature and to such an extent as must lead sooner or later to a substantial improvement. The cost of wages and fuel show a considerable reduction, but are still at a higher level than can be maintained. Until an improvement in prices takes place, and further savings in costs are effected, a fair return cannot be expected. The directors believe that this is only a question of time, and are content to wait in the full belief that the business of the company can be carried on in the meantime without incurring actual loss.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is still in a very unsatisfactory position, benzol being very flat and almost unsaleable, which is bad for this time of the year when the production is about at its lowest. Crude carbolic acid is lower and not a great amount of business doing. Pitch remains as quoted in our last report and the same may be said of anthracene.

The sulphate of ammonia market has a steadier feeling and London is reported firm, Beckton being £12. 5s. and London outside makes £12, while Hull may be quoted at £11. 15s., and Leith ranges from £11. 15s. to £12. In fact the quotations range from £11. 15s. to £12. at all ports, and if any urgent requirements turn up between now and the end of the month prices will no doubt harden again. The Whitsuntide holidays will, of course, interfere with business, but nevertheless, values are almost certain to be maintained, seeing the scarcity of available supplies.

REPORT ON MANURE MATERIAL.

There are indications that we are getting towards the end of the manure season, and the business during the week has been on a smaller scale. The quotation for 75/80% Florida phosphate rock remains unchanged. For Peace River rock and for South Carolina hot-air dried River rock 7d. per unit would be accepted, and for the latter probably a fraction less, in cargoes c.i.f. to U.K.

£4. 3s. 9d. has been paid for a cargo of River Plate bones near at hand, and there would be further buyers at the price. For autumn shipment more money required. For Bombay bone meal, on spot, sellers are making concessions from the highest point reached, and the closing value is probably not over £4. 12s. 6d. to £4. 15s. for fair average quality. Crushed East India bones are still in demand on spot, and £4 10s. is the lowest price. There is still enquiry for common grinding bones, and £4. to £4 5s., according to quality, would be paid ex quay Liverpool.

Nitrate of soda continues to decline, and closing spot price cannot be quoted over 9s. for good test, and 8s. 10½d. for ordinary.

There is nothing special to report in other material.

MISCELLANEOUS CHEMICAL MARKET.

Prices have undergone no alteration in any of the principal products of the alkali trade during the past week. The output of bleaching powder and alkali at the various factories is fairly well engaged, and the business for spot requirements is about up to the average. Bleach remains firm in price at £8. nett makers' works, and £8. 10s. nett f.o.b. with no tendency to relaxation beyond the usual slight concession made for contracts. Soda ash is not so brisk as could be desired, and the larger output of ammonia alkali continues to have a depressing effect upon values; current quotations are as reported last week, and for caustic soda as follows, viz: f.o.b. Tyne 77%, £11. nett; f.o.b. Liverpool 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream 60%,

£8. 5s. 10 ton lots and upwards. Chlorate of potash still a firm in price both for prompt and forward delivery, and of soda is in a similar position. In recovered sulphur the improvement in price or demand. In sulphate of copper large has been done and price is firm at £16. 10s. f.o.b. Acetates are unchanged in price for spot or near delivery. White lead steady at £26. c.i.f. Acetate of soda, £17. per ton. powdered arsenic is still a scarce commodity, and realizes higher prices for the limited stocks available. There has been business done in carbolic crystals 39/40°, but price is nominally at 7¼d. Liquid carbolic acids continue in good request orders are obtainable at full rates. For potash, carbonate, the is quiet and price remains at £17. c.i.f. Prussiate of potash Bichromates are firmly held at the convention price. Aniline aniline salt are respectively 6¼d. and 6¼d. per lb., but with limited business being done. Generally, in chemicals for the trades, the condition of the market is without material improve

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrant at 40s. 2d. cash. Middlesbrough 33s. 8d. cash, and Hematite cash. Copper quieter: Chili bars, G.O.B.'s and G.M.B.'s at £43. 1s. 3d. to £43. 8s. 9d. cash, and £43. 13s. 9d. to £44. three months. Tin steady: Straits closed at £90. 15s. to £91. cash and £86. to £86. 5s. three months. Australian £91. 5 English ingots, £93. Lead quiet: Spanish, £9. 10s. to £9. 15s. English, £9. 15s. to £9. 17s. 6d. Silesian spelter: Ordinary 12s. 6d. Nickel, 1s. 8½d. per lb. Antimony, £40. 10s. silver: First hands, £6. 15s. Copper shares dull: Cape, 1½. Copiapo, 2 to 2½. Libiola, 3 to 3½. Mason and 2½ to 2½. Rio Tinto, 15½ to 15½; Tharsis, 4½ to 4½; N° ¼ to 1; Panulcillo, ½ to ½.

WOLVERHAMPTON, WEDNESDAY.—Colonial business is iron is depressed by the additional Australian bank failures. Gal corrugated sheets of 24-gauge are quoted £10. 15s. to £11. black sheets are £6. 15s. to £7.; marked bars £7. 10s., mells and common £5. 10s. down to £5. 5s.; hoops, £6. 5s. to £6. gas tube strip, £5. 15s. Pig iron quiet; prices maintained: sorts, 35s.; Derbyshire, 40s. to 43s.; Northampton, 40s. Coal quiet.

GLASGOW, WEDNESDAY.—Market easy, with moderate business. Scotch done at 40s. 3½d. and 40s. 2½d. cash, also at 40s. and 40s. 5d. one month; closing with buyers at 40s. 2d. sellers ask 40s. 2½d. cash. Middlesbrough closes with buyers 33s. 8d. cash; sellers ask 33s. 9d. Cumberland hematite closes buyers at 44s. 8d. cash, sellers ask 44s. 9d. Middlesbrough closes with buyers at 42s. 3d. cash, sellers ask 42s. 6d. Market till Monday.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.—OILS.—Palm oil has much improved, being firm and in demand, considerable sales have been made at £26. for Cameroon £25. 10s., hard oils £25., all transit. Olive, continues lifeless, quotations are unaltered, and there is no likelihood that they can only be considered nominal. Linseed is on the firm, 20s. 9d. to 21s. per cwt. having been the price during the but the quotation to-day is 20s. 6d. to 21s. for Liverpool export casks. Rape, refined Stettin is still quoted 29s. per cwt. steady. Cottonseed is firm and prices have advanced, though Liverpool refined is easier, prices being 23s. 6d. to 24s. 9d. Castor oil is steady, good seconds Calcutta selling at 2½d. to first pressure French 2½d. to 2½d. per lb. Tallow: Best restricted owing to absence of stocks, and prices are nominal. common is easier at 3s. 7½d. to 3s. 9d. per cwt. spot. Safflower are easier again and are quoted 24s. per cwt. The fairly good enquiry. Petroleum is slow of sale; American 4 5¼d., Russian 4½d. to 4¼d. per gallon.

COLOURS unchanged and steady. Ochres: Oxfordshire, at £10., medium, £12., best, £15.; Derbyshire, common, 40s.; at 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.F. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. lead, red lead, and oxide of zinc unchanged. Venetian red, £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Ca £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE LIVERPOOL MINERAL MARKET.

General market continues firm. Manganese: Arrivals are only of inferior quality; prices are advancing. Borate, 7d. phosphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; £12. 10s., steady. Magnesite (raw lump) is very quiet; 1, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill) brisk, at full prices: lump 20s., seconds 16s., thirds 14s. each chalk: the demand for "Angel White" has been good, and prices are firm. Barytes: Carbonate scarce; 6d. to 85s.; finest white sulphate is in demand. "White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. is quiet. Iron ore flat, Bilbao, Irish, and Cumberland standard and manganiferous are quiet. Emerystone firm; lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. with steady; best lump, 55s.; fine impalpable ground, "emerald" ground, 80s. Scheelite, wolfram, tungstate of tungsten metal are firm. Chrome ore, best qualities, continued demand, at full prices. Antimony ore easier at £11. 10s., £43. to £45. Asbestos firm. Potters' lead ore, smalls, to £11. Calamine strontia sulphate (celestine) quiet, steady, especially for English manufactured; old G.G.B. demand at 50s. (ground). Felspar quiet. Fluorspar: very scarce. Ferro-manganese improving. Plumbago: £5.; best Ceylon lump at last quotations; Italian and £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "ie," £10. French sand, 20s. to 22s. 6d. Ground mica, 50. China clay steady, common, 18s. 6d.; good medium, 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide) best quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

There are in rather better demand and shipments fuller. Powder, steady at £8. 5s. per ton. Soda crystals, locally, at special ports. Caustic soda, £10. 15s. for 76 to 77%. Considerable sales have recently taken place, and the demand at £4 to £4. 2s. 6d. G powder, softs, £8. 5s. per ton nett; hards, £8. 10s. caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per cwt. sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in sacks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. gross weight, in 2 cwt. bags, £2. 10s. per ton nett; borate of potash, 8½d. per lb. less 6%; pearl hardening, 1 nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; £7. 10s. per ton; chloride of barium, £7. 10s. per ton; of alumina, £28. 15s. per ton nett; aluminate of soda, per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, 1 nett.

Trium salt unchanged at 9s. 1d. per ton, f.o.b. Tees. Market quiet; prices are as under. Best Northumbrian, 9d. to 8s. 10½d. per ton; second quality, 8s. to 8s. 6d.; small steam, 3s. 6d. to 3s. 9d.; bunker coals flat, 6s. for best Durham screened, 8s. 6d. per ton; gas coals, 6s. to 7s. 6d.; coke fairly steady and in rather better demand at 14s.

PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

Since our previous report fortunately the strike here is in a settlement, though the exact conditions are still subject to change, it would be too much to say that any practical effect can take place the Whitsuntide holidays, for the employers have waited so long longer at such a time is in their favour. There are stocks of seed, so that the effects upon the market will be relieved to the present tightness. Linseed oil is rather firmer. Spot closes steady at 19s. 9d. per cwt., naked, and is held for 19s. 3d.; last four months worth 18s. 3d. to 19s. 3d. Cottonseed oil has improved about 30s. per ton, 21s. 6d. on the market at the close for refined; June/August quoted crude, on the spot 20s. naked. Refined rape oil is firm at

26s. 6d. in casks for spot, turpentine 23s. 6d., petroleum, jelly, orange, and red sorts 28s. per cwt.

CAKES.—Supplies of all sorts are very limited, the prices ruling being: Linseed cakes, 95% pure, £9. 10s.; ordinary, £7. 7s. 6d.; Polish, £8. 15s.; Russians, £8. 10s. to £8. 15s.; cotton cakes, best makes, £5. 10s. to £5. 15s.; Black Sea rape cakes, for manure purposes, £3. 7s. 6d. to £3. 12s. 6d. per ton.

PAINTS.—Business in these articles continues to be brisk, and many firms doing a London business are much inconvenienced by the stoppage of the London boat here, on account of the strike. Prices previously ruling have experienced no change, and are: Oxide of iron, £9. to £18. per ton; French ochre, 65s.; venetian red, £6. to £10. per ton; fine linseed oil putty, £6.; ready-mixed paints, in tins of 1 lb. to 14 lbs., 28s. to 30s. per cwt., according to make.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

In the general market for chemicals, quietness still prevails; prices show no particular change. Bleaching powder remains the exception to the rule, fully maintaining both firmness and price, and growing in request for Baltic exportation, the demand for this particular outlet being exceedingly brisk.

Mineral oils and paraffins are all very dull, with one exception, and prices, low run down as they have been already, are with difficulty maintained. We are now nearing the height of the off season for these products, but there cannot be much wakening up of the demand for three or four months yet. The exception is the 86½° oil, at one time marketed exclusively as a lubricant, but of late getting more and more in demand for oil-gas making and coal-gas enriching purposes. The 840/850° oil (hitherto only a burning oil of lower grade) is also making its way to some position of favour with the gas companies. The Linlithgow Oil Company (the third to declare) confesses to a loss of £5,513. over the year's operations. Directors think this "not unsatisfactory," considering all things! They propose to depreciate the share capital by £50,000., and so wipe off the deficit, now for some years growing.

Sulphate of ammonia has rallied, and is to-day firm, and some shillings better than last week.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; salicake, 24s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¾d., less 5% Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £11. 15s. to £11. 17s. 6d. f.o.b. Leith; salammuniac, first and second white, £35. and £33., less 2½%, any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 86½°, £3. 15s.; 88½°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 4,862 bags.

New Companies.

Hudson Smoke Burner and Fuel Economiser Co., Ltd.—CAPITAL, £6,000. in £10. shares. This company has been formed to acquire patents and processes for the consumption of smoke in boiler furnaces, etc. The subscribers to the memorandum of association are:—H. C. Hudson, Springfield Mills, Morley, woollen manufacturer; W. M. Bennie, Springfield House, Morley, mill engineer; J. Graham, Springfield Terrace, Morley, engineer; F. B. Hudson, Springfield Mills, Morley, woollen manufacturer; C. E. Bousfield, Springfield Mills, Morley, woollen manufacturer; J. Barker, Leeds, woollen manufacturer; R. B. Hopkins, Morley, solicitor.

Ruddolph Laboratory Co., Ltd.—CAPITAL, £10,000. in £10. shares. This company has been formed to acquire the goods in businesses formerly carried on by Henry Atkinson at Reading, and to trade as chemists, druggists, etc. The subscribers to the memorandum of association are:—J. F. Sargent, Holly Bank, Bracknell, solicitor;

J. H. Knowles, Reading, chemist; F. C. Atkinson, Sproughton, Ipswich, newspaper proprietor; A. V. Knowles, London-road, Reading, gentleman; C. H. Cox, 37, Walbrook, E.C., publisher; H. Atkinson, Esq., Reading, manufacturing chemist; W. H. Sandwith, Bucknell, chemist.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

New Chemical Substances from Orris-root. J. C. W. F. Tiemann. 8,735. May 1.
New Chemical Substances suitable for Perfumery, etc. J. C. W. F. Tiemann. 8,736. May 1.
Improvements in Tallow Rendering. W. J. Fraser and T. C. Palmer. 8,740. May 1.
Improvements in the Manufacture of Illuminating Gas. J. H. R. Dinmore. 8,750. May 2.
Automatic Distilling Apparatus. E. Ruud. 8,817. May 2.
Basic Compounds from Pyrazine. H. E. Newton. 8,824. May 2.
Colouring Matters. H. E. Newton. 8,898. May 3.
Apparatus for Softening Water. C. E. Gittins. 8,900. May 3.
Improvements in the Manufacture of Nitric and Muriatic Acid or the like, where Sulphuric Acid is employed, and of Superphosphate of Lime. M. Prentice. 8,902. May 3.
Improvements in the Manufacture of Soda Crystals. H. R. Browne and M. Guthrie. 8,907. May 3.
Improved Apparatus for the Electrolytical Decomposition of Brine, etc. M. Guthrie. 8,908. May 3.
Improvements in the Manufacture of Explosives. F. M. Carulla. 8,947. May 4.
Colouring Matters. A. Liebmann and A. Studer. 8,973. May 5.
Improved Apparatus for Concentrating and Distilling Liquids. O. Guttman. 9,006. May 5.
Manufacture of Cream of Tartar. Sir J. B. Lawes. 9,028. May 5.
Manufacture of Sulphurous Acid and Sulphites. M. Prentice. 9,047. May 5.

Treating Sewage by means of Ferric Compounds. R. C. Taylor. May 5.
Improvements in Filters. Baron L. F. S. de Vaxoncourt and C. 9,083. May 5.
Manufacture of Odourless Oils and Fats, etc. C. D. Abell. 9,083. May 5.
Process for the Simultaneous Preparation of Sodium and Bichromate from the Neutral Chromate. C. Haumann. May 5.

GERMAN PATENTS for week ending MAY 20, 1900.

Specially abstracted by Dr. H. Zerener, civil engineer, Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to at once protest against of such new Patents as may collide with the interests of subjects.

22 B. 13,696. Preparation of Benzylic Ketones from Tetraalkyl benzophenones. Badische Aniline u. Soda Fabrik, Ludwigshafen.
22 B. 14,102. Acid Blue Dyestuffs from Nitrosodialkyl-m-ami (addition to patent 45,268). Bad. Aniline u. Soda Fabrik, Ludwigshafen.
26 M. 8,917. Carburetted Apparatus for Gas and Air. S. I. E. F. Bothe, Vienna.
53 E. 3,715. Preparation of Coffee by mixing Extract of R. Tannin and Sacchariferous Extracts. T. A. Eckhardt, Darts.
75 C. 4,492. Recovery of Salt from Hargreaves Process. Fabrik, Rhenania, Aachen.
22 C. 4,479. Preparation of α , -Amido- α -naphthol β , mon. Acid. Chem. Farb., Grunau.
29 G. 7,266. Scouring Wool and Hair Cloths. C. Gunthe Berlin.
75 S. 6,782. Improved Anode for the Electrolytical Decomposition of Salt. W. Spilker, Berlin.

Gazette Notices.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

WALKER, JOHN, and DENT, JAMES (trading as Walker and Dent), Le merchants and drysalters.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 6th.

Acetic Acid—

Holland, 150 pkgs. Beresford & Co.
" 138 A. & M. Zimmermann

Alkali—

France, 310 c. Arnati & Harrison

Alum—

Germany, 1 pkge. H. Lambert

Aluminium—

France, £192 Major & Field

Ammonia—

Holland, 5 pkgs. H. Lorenz

Antimony—

Australia, 30 l. Major & Field
France, 3 B. & F. Wf. Co. Ltd.
" 30 J. Bamber

Arsenic—

Germany, 35 pkgs. T. H. Lee

Asbestos—

Italy, £100 A. H. Smith
" 439 British Asbestos Co.
Holland, 39 Philipps & Graves

Barium Chloride—

Germany, 22 pkgs. Petri Bros.

Barytes—

Germany, 19 cks. S. H. Willoughby
Belgium, 9 J. L. Lyon & Co.
" 41 W. Pope & Co.
Germany, 25
" 24 Tough & Henderson
" 42 Blundell, Spence & Co.
Holland, 70 Mages, Taylor & Co.
Belgium, 19 S. H. Willoughby

Boracic Acid—

Italy, 35 pkgs. J. Paddy & Co.
" 2 Baiss Bros. & Co.
" 2 G. Boor & Co.

Borate of Lime—

Persia, 104 pkgs. M. D. Co.

Borate of Manganese—

Germany, 20 pkgs. Petri Bros.

Caoutchouc—

Zanzibar, 2 c. L. & I. D. Jt. Co.
E. Indies, 24 " "
Rangoon, 13 " "
France, 49 Flageollet & Co.
" 49 Lewis & Peat

Holland, 3 Philipps & Graves

Greytown, 6 Lewis & Peat

Cape, 25 Hale & Son

E. Indies, 24 L. & I. D. Jt. Co.

" 38 Butler's Wf. Ltd.

" 60 J. H. & G. Scovell

Castor Oil—

Italy, 50 cs. Stebbing & Co.
" 5 Grimwade, Ridley & Co.

" 20 Major & Field

" 25 Baiss Bros. & Co.

France, 3 W. G. Frih & Co.

" 15 brls. Beresford & Co.

" 84 Lucas & Spencer's Wf. Ltd.

Belgium, 35 Fuerst Bros.

Italy, 30 cs. Hodgkinsons & Co.

" 10 A. & M. Zimmermann

" 25 Beresford & Co.

" 25 Barron, Harveys & Co.

" 12 brls. Evans, Lescher & Co.

Caustic Potash—

France, 63 c. Petri Bros.
" 100 Spies Bros & Co.

Chemicals (otherwise undescribed)

Germany, 65 pkgs. Philipps & Graves
" 1 Jensen & Nielsen
" 126 T. H. Lee
" 3 H. Lambert

" 135 A. & M. Zimmermann
" 11 Craven & Co.

" 4 Hema, Peron & Co.
" 23 B. G. Lennon & Co.

Citrate of Lime—

Italy, 10 pkgs. W. C. Bacon & Co.

Copperas—

Germany, 29 pkgs. Burgoyne & Co.

Cream of Tartar—

Holland, 10 pkgs. Middleton & Co.
Italy, 21 Fellows, Morton & Co.
France, 5 M. Ashby, Ltd.

" 5 W. C. Bacon & Co.

" 1 Smith, Abbott & Co.

" 2 J. L. Lyon & Co.

Italy, 11 W. Isted

Spain, 2 Evans, Leacher & Co.

France, 5 B. & F. Wf. Co., Ltd.

Italy, 20 B. Jacob & Sons

Dextrine—

Germany, 15 pkgs. M. D. Co.

Dyestuffs—

Aniline
Holland, 35 pkgs. Philipps & Graves

Anthracene

Holland, 4 pkgs. Burt, Boulton & Co.

Argols

Italy, 1,110 pkgs. 559 brls. B. Jacob & Sons
" 31 Thames S. T. & L. Co., Ltd.

Cochineal

Canaries, 6 pkgs. L.

Cutch

E. Indies, 340 pkgs. Hema

Extracts

Austria, 71 pkgs. L.
Germany, 60 A. L.
France, 150 B. & F. Wf.
Brisbane, 8 Gellatly, H.

U. States, 30 W. East

" 50 S. I.

France, 10 Bess.

" 1 S. I.

Denmark, 3 Bailey

Germany, 5

France, 70 L. J. Leroux

" 550 Boucher, B.

Belgium, 370

" 170 A. J. Hump

France, 101 Williams, L.

Gambler

E. Indies, 205 pkgs. S. Burt

Indigo

E. Indies, 13 cks. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 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819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 10

Shomac Italy, 500 pgs. J. Kitchin, Ltd. " 100 R. Roberts	Tanners' Bark Belgium, 2 t. T. H. Lee Natal, 12 A. & W. Nesbitt Barbadoes, 1 R. G. Lee & Co. Melbourne, 34 A. B. Curtis & Co. Belgium, 27 Leach & Co.	Turmeric Cochin, 275 pgs. Buller's Wf. Ltd. E. Indies, 154 Major & Field " 251 Hoare, Wilson & Co. " 595 Union L. Co. Ltd. Hong Kong, 65 R. Warner & Co. Ltd. E. Indies, 599 Lewis & Peat Dyestuffs (otherwise undescribed) Portugal, 266 pgs. Knowles & Co.	Farina Holland, 50 pgs. R. G. Hall & Co. " 30 Hicks, Nash & Co. " 50 H. Lorenz " 50 Ohlenschlager Bros. " 266 J. Forsey " 50 J. Knill & Co. Germany, 50 Dunlop Bros. & Co.	Glucose U. States, 20 pgs. 110 cwt. H. Evans " 50 269 W. Balchin " 50 320 J. Knill & Co. " 125 688 Prop. Chamblin's Wf. " 50 270 Kearsley & Tonge Germany, 300 300 Baxter & Hoare " 200 200 Julius Frank & Co. " 100 100 Hicks, Nash & Co. Holland, 80 80 Prop. Sun Wf. France, 200 200 Barrett, Tagant & Co. U. States, 150 824 Soundy & Sons " 5 Williams, Torrey & Co. " 1,000 1,000 Beresford & Co. " 25 120 Fellows, Morton & Co. " 2,300 2,300 L. Sutro & Co. " 300 1,800 Union L. Co., Ltd.	Guano U. States, 1,480 t. Anglo Contl. G. Wks. Cape, 450 t. D. de Pass & Co.	Lysol Germany, 2 pgs. F. W. Berk & Co. Ltd.	Manganese Australia, 190 t. Harrold Bros. Germany, 14 H. Johnson & Sons	Manure Germany, 110 t. F. W. Berk & Co., Ltd. " 200 Lawes Manure Co., Ltd. France, 85 A. Hagan	Methyl Alcohol Belgium, 23 drs. Steiu Bros. Holland, 7 "	Mica U. States, 550 Knight & Morris	Naphthol Holland, 7 pgs. J. Owen	Ochre France, 7 cks. O'Hara & Hoar " 63 J. L. Lyon & Co. " 32 B. & F. Wf. Co. Ltd. Holland, 6 cs. Philipps & Graves	Painters' Colours Germany, 13 pgs. 2 cs. L. & I. D. Jt. Co. Belgium, 30 T. Palmer France, 33 Flageolet & Co. Germany, 100 cks. W. Fenton " 88 Craven & Co. " 1 ck. Becker & Ulrich Holland, 20 pgs. Philipps & Graves " 3 cks. R. Baile & Co. France, 7 pgs. Bennett S. S. Co. Ltd. " 3 cs. 3 Hernu, Peron & Co. Germany, 6 Philipps & Graves " 1 ck. H. Keller & Co. E. Indies, 3 pgs. L. & I. D. Jt. Co. U. States, 50 A. C. Davey Belgium, 37 cks. Arnati & Harrison Germany, 6 pgs. T. H. Lee
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U. States, 10 W. Johnson & Co. Ltd. " 150 Steinhoff, Sons, & Co. Ltd.	Belgium, 104 pgs. W. Harrison & Co.	Paraffin Wax U. States, 201 cs. H. Hill & Sons " 605 brls. Williams, Torrey & Co. " 412 1,850 cs. J. H. Usmar & Co.	Phosphate Rock France, 279 t. Anglo Contl. G. Wks. " 140 A. Hunter & Co. Belgium, 127 Odams Chemical Manure Co.	Pitch Germany, 241 cks. Fellows Morton & Co. " 90 T. H. Lee Trinidad, 7 brls. Gillespie Bros. & Co.	Plumbago Italy, 100 pgs. R. Gallaway Cochin, 78 brls. Marshall & French Ceylon, 341 J. Thredder Sons & Co. Germany, 18 cks. Prop. Scott's Wf.	Potassium Carbonate France, 70 c. Petri Bros. Germany, 200 Pillow, Jones & Co.	Potassium Permanganate Germany, 20 pgs. T. Palmer	Potassium Prussiate Germany, 1 pgs. Beresford & Co.	Potassium Sulphate France, 127 pgs. Petri Bros. 450 F. W. Berk & Co., Ltd. Belgium, 40 Union L. Co., Ltd.	Pyrites Spain, 786 t. Anderson, Anderson & Co.	Quicksilver Italy, 100 flks. H. Bath & Son	Rosin U. States, 5,539 brls. H. Hill & Sons	Saltpetre Germany, 43 cks. Brown & Elmslie Chili, 7,310 bgs. W. Montgomery & Co.	Sodium Acetate France, 18 pgs. S. F. Waters & Co.	Sodium Chlorate Italy, 50 pgs. A. Hughes	Sodium Hyposulphite Holland, 70 pgs. Beresford & Co.	Sodium Nitrite Germany, 9 pgs. C. Faust & Co.	Sulphur Italy, 5 t. J. Puddy & Co. " 5 R. Morrison & Co. " 400 Brandram Bros. & Co. " 15 J. Kitchin, Ltd. " 100 W. C. Bacon & Co. " 5 Hyslop & Symonds " 15 F. Smith " 115 Johnson & Hooper Carthagen, 100 A. Hunter & Co.	Sulphur Chloride Germany, 10 pgs. Typke & King	Tallow Sydney, 20 cks. Flack, Chandler & Co. N. Zealand, 18 " 80 A. B. Curtis & Co. " 78 Culverwell, Brooks & Co. " 95 N. Z. L. & M. A. Co. " 120 Leach & Co. Germany, 1 cs. T. Christy & Co. N. Zealand, 19 cks. Bowron Bros. " 117 Flack, Chandler & Co. " 100 Gear Meat Pres'g. Co. Melbourne, 240 A. B. Curtis & Co. Germany, 2 L. & I. Dk. Co. Sydney, 13 A. Frey & Co. " 276 Sollas & Sons " 324 Philipps & Graves N. Zealand, 6 Beresford & Co. " 69 Dalgety & Co. Ltd. Sydney, 52 A. B. Curtis & Co. N. S. Wales, 70 "	Tallow and Stearine U. States, 31 pgs. W. W. Young Germany, 10 cks. T. H. Lee	Tartaric Acid Holland, 12 pgs. Middleton & Co. " 15 B. & F. Wf. Co. Ltd.	Tin Oxide Germany, 6 cks. H. Lambert
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Ultramarine Belgium, 5 pgs. W. Harrison & Co. Holland, 20 cks. Hernu, Peron & Co. Germany, 15 cs. G. Steinhoff Holland, 5 B. Gallaway Belgium, 62 cks. Leach & Co. Germany, 8 cs. W. Fenn Holland, 14 pgs. Haefner, Hilpert & Co.

White Lead France, 10 cks. J. Watt & Son Germany, 10 Randall Bros. Belgium, 8 brls. O'Hara, Matthews & Co. Germany, 23 cks. G. F. Clifford " 30 T. & W. Fairmilee

Zinc Oxide Holland, 3 cks. J. Matton " 25 brls. M. Ashby, Ltd. Germany, 100 U. States, 12 Forster & Gregory Germany, 28 C. Tennant, Sons & Co.
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LIVERPOOL.

Week ending May 4th.

Alkali Antwerp, 3 brls. J. T. Fletcher & Co.	Ammonia New York, 25 cydrs.	Aniline Salts Rotterdam, 4 cks.	Asbestos Portland, 800 pgs.	Barytes Rotterdam, 25 cks. Antwerp, 21	Bone Ash Rio Grande do Sul, 414 c. A. Tesdorpf & Co.	Boracite Panderma, 315 t. Roberts & Evans	Borate of Lime Antofagasta, 1,500 bgs. Cockbain, Allardice & Co.	Borax Valparaiso, 749 bgs.	Castor Oil Calcutta, 434 cs. Ralli Bros. " 1,475 Leghorn, 35	Caustic Potash Rouen, 21 cks. R. J. Francis & Co.	Chemicals (otherwise undescribed) Hamburg, 5 clys. Rotterdam, 13 cks.	Colours Hamburg, 1 brl. 4 cks. Rotterdam, 12 cs. 16	Cream of Tartar Barcelona, 2 pps. Rotterdam, 4 cks.	Cottonseed Oil New York, 60 brls.	Dried Blood B. Ayres, 517 bgs. W. E. Dickinson	Dyestuffs Algarobilla Valparaiso, 55 aks. J. Caro & Co. Argols Oporto, 23 cks. Ger. Bank of London	Divi Divi Rio de la Hacha, 232 t. Widow, Duranty & Son Amsterdam, 319 bgs. Brown, Geveke & Co.	Rio Hacha, Extracts Baltimore, 20 brls. Philadelphia, 25 brls.	Fustic Philadelphia, 110 pgs.	Indigo Calcutta, 2 chts.	Myrabolams Calcutta, 112 bgs. Ralli Bros. " 597 pkts.	Orchella Lisbon, 79 bgs. Pinto Leite & Bros. " 18 17 brls. Edward Bros. " 64 A. Barbosa & Co.
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Sumac Barcelona, 100 bgs. T. Crossley & Co. Palermo, 400 650	Turmeric Calcutta, 250 bgs. Ralli Bros.	Valonia Marathonisi, 101 1/2 t. Papayanni & Jeremias	Glucose New York, 200 brls. Hamburg, 200 cks. 50 kgs. New York, 50 brls. G. L. Bartol & Co. Rotterdam, 10 cks.	Iodine Valparaiso, 25 brls. W. & J. Lockett " 39 " 68 A. Gibbs & Sons	Lead Acetate Rotterdam, 2 cks.	Lime New York, 1,613 bgs.	Limestone Antwerp, 1 cs. J. T. Fletcher & Co.	Manganese Yokohama, 300 t. Carrizal, 600	Nitrate Rotterdam, 3 cks. Iquique, 7,365 bgs. Chinchilla & Bros. " 13,124 Hainsworth, Watson & Co.	Ochre Baltimore, 150 brls. Bordeaux, 34 cks. Rouen, 50 Co-op. W'sale Society, Ltd.	Paint Hamburg, 18 cks. Halifax, 10 crts. W. H. Hucknell	Paraffin Scale Baltimore, 150 brls. Philadelphia, 628 50 cs. New York, 595 H. Hill & Sons	Phosphates Terneuzen, 560 t. Ghent, 500 bgs.	Pitch Amsterdam, 50 cks.	Potash Rouen, 51 cks. Co-op. W'sale Society, Ltd. Dunkirk, 27 Rotterdam, 18	Potassium Carbonate Hamburg, 2 cks.	Potassium Prussiate Rotterdam, 6 cks.	Pumice Stone Messina, 15 cs. 15 bgs. Leghorn, 20	Pyrites Huelva, 1,496 t. Tennants & Co. " 3,018 Matheson & Co.	Rosin Wilmington, N.C., 5,006 brls. Baltimore, 500 Savannah, 4,725 Hamburg, 10 cs.	Salt Philadelphia, 600 brls. G. W. Butler Hamburg, 2,058 bgs.	Saltpetre Calcutta, 2,308 bgs. Ralli Bros. " 519 Hamburg, 50 brls.	Soap Philadelphia, 4 cs. Naples, 72 Auverney & Co.	Soapstone Philadelphia, 140 bgs.	Sodium Nitrate Pisagua, 7,985 bgs. Cockbain, Allardice & Co. " 1,609 Hainsworth, Watson & Co. Caleta, 7,667 Duncan, Fox & Co.	Stearine Antwerp, 2 cks. 13 bgs.	Sulphur Catania, 75 t. 20 cs. 698 bgs. 7 brls.
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Tallow—
Boston, 25 hlds.
Philadelphia, 62 tcs. G. E. Chase
New York, 250
B. Ayres, 353 cks.

Tar—
Wilmington, N.C., 4,131 brls.

Tartar—
Bordeaux, 7 cks.

Tartaric Acid—
Rotterdam, 19 cks.

Tin Ashes—
Rotterdam, 1 ck.

Tinical—
Calcutta, 110 bgs.

Turpentine—
Savannah, 250 brls.

Ultramarine—
Hamburg, 4 cks.
Rotterdam, 2 19 cs.

Waste Salt—
Hamburg, 102 bgs.

White Lead—
Rotterdam, 76 cks.
Antwerp, 1 brl.

Wood Spirit—
Hamburg, 10 cks.

Zinc Ashes—
New York, 7 cks. Burgess & Co.

Zinc Oxide—
Hamburg, 50 cks.
Rotterdam, 10
Antwerp, 40 brls. J. T. Fletcher & Co.

Zinc Skimmings—
Boston, 228 bgs.
New York, 12 cks.

Zinc White—
Rotterdam, 50 cks.

HULL.

Week ending May 6th.

Acetate—
New York, 764 pks. Wilson, Sons, & Co., Ltd.

Acids—
Rotterdam, 17 ballns. W. & C. L. Ringrose

Alum—
Rotterdam, 24 cks. Hutchinson & Son

Aluminium—
Hamburg, 1 ck.

Asbestos—
Flushing, 1 bl. Wilson, Sons, & Co., Ltd.

Barytes—
Antwerp, 46 cks. Bailey & Leatham
Rotterdam, 106 Hutchinson & Son

Chemicals (otherwise undescribed)
Hamburg, 51 pks. Wilson, Sons, & Co., Ltd.
" 5 cks. Bailey & Leatham

Bremen, 4 Veltmann & Co.
Dunkirk, 78 Wilson, Sons, & Co., Ltd.

Colours—
Stettin, 2 cks. Wilson, Sons, & Co., Ltd.
Rotterdam, 100 pks. W. & C. L. Ringrose

" 2 cs. 9 G. Lawson & Sons
" 5 cks. Hutchinson & Son

Flushing, 9 8 Wilson, Sons, & Co., Ltd.
Antwerp, 1 Bailey & Leatham

" 10
Bremen, 6 Veltmann & Co.
" J. T. Seddon
" 2 Hanger, Watson, & Harris

Cryolite—
Copenhagen, 1 ck. Wilson, Sons, & Co., Ltd.

Dextrine—
Stettin, 70 bgs. Wilson, Sons, & Co., Ltd.

Dyestuffs—
Alizarine
Rotterdam, 126 pks. W. & C. L. Ringrose

Madder
Rotterdam, 2 cks. Hutchinson & Son

Myrabolams
Bombay, 9,654 bgs.

Valonia
Smyrna, 150 t.

Farina—
Stettin, 310 bgs.
Harlingen, 260
Danzig, 100
Ghent, 120 bxs. Wilson, Sons, & Co., Ltd.

Glucose—
New York, 349 brls. 450 pkgs.
Stettin, 27 cks. Wilson, Sons, & Co., Ltd.
" 800 bgs.

Guano—
Christiansund, 400 bgs. Wilson, Sons, & Co., Ltd.

Kainit—
Hamburg, 1,008 bgs. and qty. Wilson, Sons, & Co., Ltd.

Manure—
Gothenburg, 280 t. 500 bgs. Wilson, Sons, & Co., Ltd.

Mica—
Christiana, 6 cs. Wilson, Sons, & Co., Ltd.

Paint—
Boston, 221 cs. Wilson, Sons, & Co., Ltd.

New York, 18 " "

Pitch—
Dunkirk, 23 cks. Wilson, Sons, & Co., Ltd.

Ghent, 50 brls. " "

Plumbago—
Hamburg, 14 cks. Furley & Co.
" 17 G. Buckton & Son
" 19

Quicksilver—
Hamburg, 1 brl. Wilson, Sons, & Co., Ltd.

Rosin—
Hamburg, 10 bgs. Wilson, Sons, & Co., Ltd.

Bordeaux, 3 cks. Rawson & Robinson

Savannah, 4,700 brls.
New York, 500 Wilson, Sons, & Co., Ltd.

Saltpetre—
Hamburg, 4 cks. Wilson, Sons, & Co., Ltd.

Soap—
New York, 1 cs. Wilson, Sons, & Co., Ltd.

Soda—
Rotterdam, 18 cs. Hutchinson & Son

Superphosphate—
Antwerp, 100 bgs. Bailey & Leatham

Tallow—
New York, 211 brls. Wilson, Sons, & Co., Ltd.

Tartar—
Bordeaux, 1 ck. Rawson & Robinson

Tartaric Acid—
Rotterdam, 2 cks. W. & C. L. Ringrose

Ultramarine—
Bremen, 4 cks. 4 cs.

Yarnish—
New York, 10 brls. 25 pks. Wilson, Sons, & Co., Ltd.

Waste Salt—
Hamburg, 102 bgs. Wilson, Sons, & Co., Ltd.

White Lead—
Antwerp, 46 cks. Bailey & Leatham

GLASGOW.

Week ending May 11th.

Alkali—
Rotterdam, 20 cks. J. Rankine & Son

Aniline—
Hamburg, 52 cks.

Aniline Colours—
Rotterdam, 6 cs. 10 cks. J. Rankine & Son

Hamburg, 4

Barium Sulphate—
Antwerp, 350 bgs.

Barytes—
Rotterdam, 49 cks.

Bone Meal—
Iceland, 5 sks. J. T. Salvesen & Co.

Castor Oil—
Marseilles, 128 cks.
Antwerp, 116

Colours—
Amsterdam, 1 cs. 1 kg.
Rotterdam, 28 pkgs.
Hamburg, 15 cks. 5 cs.

Cream of Tartar—
Marseilles, 54 cks.

Dyestuffs—
Alizarine
Rotterdam, 149 cks. 16 pkgs.

Argols
Bordeaux, 35 bgs.

Extracts
Antwerp, 5 cks.

Madder
Marseilles, 5 cks.

Farina—
Antwerp, 60 bgs.
Hamburg, 150

Glucose—
N. York, 350 pkgs. 50 brls.

Guano—
Iceland, 95 sks.

Manganese Sulphate—
Hamburg, 6 cks.

Ochre—
Marseilles, 54 cks.
Rouen, 27

Paint—
N. York, 1 pkge. 3 cs.

Painters' Colours—
Antwerp, 4 cks.

Paraffin Scale—
N. York, 366 pkgs.
Philadelphia, 560 brls.

Phosphates—
Antwerp, 400 bgs.

Pitch—
Marseilles, 45 cks.

Potassium Carbonate—
Hamburg, 10 cks.

Pyrites—
Huelva, 3,035 t. The Tharsis Sulphur & Copper Co., Ltd.

Rosin—
N. York, 1,010 pkgs. 1,000 brls.

Salt—
N. York, 15 pkgs.

Silica—
Hamburg, 200 bgs.

Soap—
Philadelphia, 51 crts. 300 bxs.

Soda—
N. York, 10 pkgs.

Sodium Acetate—
Antwerp, 24 cks.
Rouen, 16

Sodium Nitrate—
Iquique, 9,578 bgs. Thomson, Aikman & Co.

Stearine—
Philadelphia, 125 sks.

Sulphur—
Huelva, 1,730 t. Seville Sulphur and Copper Co.

Tallow—
N. York, 50 hlds. 60 pkgs.

Tartar
Bordeaux, 12 cks.
Oporto, 6

Tartaric Acid—
Rotterdam, 3 cks. J. Rankine & Son
Marseilles, 7 pkgs.

Tin Oxide—
Rotterdam, 12 cks. J. Rankine & Son

Waste Salt—
Hamburg, 310

White Lead—
Antwerp, 6 cks.
Rotterdam, 78 J. Rankine & Son

Zinc Ashes—
Bordeaux, 187 bgs. 15 cks.

Zinc Oxide—
Antwerp, 5 cks.

TYNE.

Week ending May 6

Alum Earth—
Hamburg, 54 cks. Tys

Asbestos—
Rotterdam, 1 1/2 Tys

Barytes—
Rotterdam, 49 cks. Tys

Colours—
Antwerp, 3 brls. Tys

Cryolite—
Copenhagen, 3 cks.

Farina—
Hamburg, 24 bgs. Tys

Glucose—
New York, 125 brls. Farn

Limestone—
Antwerp, 1 crl. Tys

Paraffin Scale—
New York, 504 brls. Farn

Pyrites—
Huelva, 200 t.

Saltpetre—
Hamburg, 13 cks. 1 kg. Tys

Sulphur—
Memel, 780 t.

Tallow—
New York, 140 brls. Wad

Tartaric Acid—
Rotterdam, 4 cks. Tys

White Lead—
Antwerp, 50 brls. Tys

GOOLE.

Week ending May 3rd

Antimony—
Boulogne, 2 brls.

Caoutchouc—
Boulogne, 6 brls.

Chemicals (otherwise undescr)
Rotterdam, 1 brl.

Dyestuffs—
Alizarine
Rotterdam, 60 pkgs. 4 brls.

Fustic
Jamaica, 100 t.

Logwood
Belize, 350 t.
Jamaica, 110

Dyestuffs (otherwise undescr)
Boulogne, 18 brls. 2 c 40

Farina—
Delfslyd, 401 bgs.

Lead Acetate—
Hamburg, 32 cks.

Phosphate—
Ghent, 800 bgs.

Potash—
Rotterdam, 22 brls.
Dunkirk, 4 cks. 11 brls.

Rosin
Brunswick, 3,069 brls.

Saltpetre—
Hamburg, 6 cks.

Waste Salt—
Hamburg, 844 cks. 40 c

GRIMSBY.

Week ending May 6th

Chemicals (otherwise undescr)
Antwerp, 10 cks.

Dyestuffs (otherwise undescr)
Hamburg, 17

Farina—
Dieppe, 17 cks.

Indigo—
Hamburg, 200 bgs.

Pitch—
Rotterdam, 5 cks.

Size—
Dieppe, 9 cks.

Zinc Ashes—
Antwerp, 8 cks.

Zinc Oxide—
Antwerp, 14 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 10th.

Acids—			
Montreal,	7 cs.	£13	
Alkali—			
Cadiz,	10 c.	£5	
Ammonia—			
Hamburg,	24 drs.	£70	
Ammonium Carbonate—			
Paris,	4 t. 14 c.	£123	
Mauritius,	3 cs.	9	
Bordeaux,	10 cks.	37	
Copenhagen,	13	15	
New York,	50	290	
Ammonium Chloride—			
Bombay,	36 brls.	£115	
Ammonium Nitrate—			
Algoa Bay,	19 rns.	£157	
Ammonium Sulphate—			
Antigua,	60 t. 7 c.	£844	
Mexico,	3	11	
Rotterdam,	25	300	
Hamburg,	35	424	
Martinique,	230	2,790	
Ostend,	9	107	
Barbadoes,	35	420	
Trinidad,	98	1,213	
Anhydrous Ammonia—			
Aarhus,	2 cydls.	£6	
Arsenic—			
Amsterdam,	6 cks.	£16	
Brisbane,	1 t. 1 c.	14	
Melbourne,	3	61	
Benzoic Acid—			
Philadelphia,	1 cs.	£7	
Bleaching Powder—			
Rio de Janeiro,	8 c.	£25	
Algoa Bay,	12	8	
Borax—			
Brussels,	8 c.	£10	
Genoa,	19	73	
Algoa Bay,	5	7	
Hamburg,	6 cks.	£44	
Boric Acid—			
B. Ayres,	2 cks.	£9	
Carbolic Acid—			
Rotterdam,	40 cks.	£182	
Hamburg,	16 cs.	41	
Genoa,	11 pkgs.	54	
Montreal,	20	30	
Philadelphia,	8 t. 16 c.	263	
Carbon Bisulphide—			
Adelaide,	10 c.	£11	
Sydney,	25 cs.	29	
Philadelphia,	18 drs.	75	
Caustic Soda—			
Pt. Elizabeth,	1 t. 5 c.	£34	
Mauritius,	1	18	
Brisbane,	10	12	
Melbourne,	11	105	
Philadelphia,	15	156	
Algoa Bay,	9	284	
Chemicals (otherwise undescribed)			
Natal,	41 pkgs.	£63	
Delagoa Bay,	2 cs.	10	
Kobe,	1 t.	27	
Yokohama,	10 c.	64	
Adelaide,	5 kgs. 5 cs.	42	
Brisbane,	2 c.	10	
Montreal,	2 cks. 1	13	
Algoa Bay,	4 c.	13	
Genoa,	5	9	
Mauritius,	3	122	
Citric Acid—			
Neval,	11 c.	£81	
Genoa,	10	78	
Barcelona,	4 cks.	154	
Hamburg,	1	10	107
Brisbane,	5	39	
Algoa Bay,	1 kg.	5	
Launceston,	2	15	
Rotterdam,	2	16	
Melbourne,	10	78	
Lisbon,	10	78	
Riga,	2	17	
Stockholm,	5	39	
Coal Products—			
Alizarine			
Boston,	36 cks.	£501	
Antiline Oil			
Rotterdam,	12 drs.	£375	
Ghent,	1 ck.	15	
Barcelona,	8	110	
Anthracene			
Rotterdam,	332 cks.	£2,059	
Benzol			
Rotterdam,	496 cks.	£1,919	
Calais,	20	171	
Boulogne,	20	130	
Creosote			
Danzig,	100 brls.	£47	
New York,	200	96	
Calais,	76	63	
Ostend,	23,210 galls.	216	
Creosote Oil			
Treport,	30 brls.	£41	
Naphtha			
Melbourne,	7 cs.	£11	
Naphthaline			
Treport,	50 tgs.	£28	
Hamburg,	20	116	
Stockholm,	2 cs.	15	
Konigsberg,	12	20	
Pitch			
Genoa,	5 cks.	£44	
Naples,	50	23	
Philadelphia,	666 pkgs.	136	
Rotterdam,	578 t.	723	
Wyburg Town,	47	60	
Hochfield,	126	158	
Alexandria,	300 brls.	96	
Sydney,	20	10	
Gijon,	190	278	
Ghent,	275	402	
Melbourne,	20	16	
Hong Kong,	531 cks.	250	
Dunkirk,	450	650	
New York,	250	107	
Boston,	250	107	
Dordt,	160	225	
Tar			
Stettin,	100 brls.	£50	
Wyburg Town,	564	254	
Gothenburg,	50 rns.	33	
Singapore,	20	13	
Sydney,	30	20	
Melbourne,	30	22	
Boston,	300	108	
Tar Oil			
St. Petersburg,	25 cks.	£105	
Hayre,	50 brls.	212	
Tar Salts			
Algoa Bay,	5 cs.	£24	
Toluol			
Rotterdam,	59 pkgs.	£275	
Copper Sulphate—			
Naples,	7 t. 10 c.	£120	
Gibraltar,	1	18	
Bordeaux,	45	720	
Lisbon,	9	13	
Dunkirk,	4	74	
Cream of Tartar—			
Brisbane,	15 c.	£84	
Sydney,	2 t. 10	199	
Melbourne,	3	238	
Cook Town,	2	8	
Disinfectants—			
Bordeaux,	8 cks.	£18	
Sydney,	7 cs.	28	
Bushire,	2 c.	10	
Hong Kong,	100 drs.	100	
Hioho,	3	10	
Launceston,	5	12	
Brisbane,	6	79	
Melbourne,	20 kgs.	7	
Flowers of Sulphur—			
Natal,	10 c.	£6	
Oporto,	1 t. 1	11	
Algoa Bay,	9	13	
Guano—			
St. Vincent,	40 t.	£450	
Jamaica,	25	253	
Trinidad,	17	165	
St. Kitts,	10	120	
Hypophosphite of Lime—			
Philadelphia,	14 c.	£248	
Manure—			
Barbadoes,	151 t. 10 c.	£1,461	
Limon,	10	88	
Mauritius,	30	76	
Berbec,	13	130	
Demerara,	20	200	
Martinique,	247	1,677	
Grenada,	2	16	
St. Lucia,	60	798	
Madeira,	6	24	
Guadeloupe,	193	2,160	
Nitric Acid—			
Montreal,	9 c.	£12	
Oxalic Acid—			
Yokohama,	10 c.	£14	
Phosphoric Acid—			
Philadelphia,	1 t. 17 c.	£216	
Phosphorus—			
Rio de Janeiro,	1 c.	£15	
Oporto,	1	11	
Potash Crystals—			
New York,	12 c.	£83	
Potash Salts—			
Natal,	52 t.	£6,288	
Potassium Bicarbonate—			
New York,	1 t. 4 c.	£34	
Potassium Chlorate—			
Melbourne,	10 c.	£35	
Lisbon,	5	19	
Potassium Cyanide—			
Algoa Bay,	10 c.	£42	
Brisbane,	5 cs.	25	
Potassium Prussiate—			
B. Ayres,	4 c.	£17	
Lisbon,	11	44	
Potassium Sulphate—			
Antigua,	3 t.	£30	
Saltpetre—			
Rio de Janeiro,	9 t. 2 c.	£204	
Melbourne,	3	77	
Sheep Dip—			
B. Ayres,	500 cs.	£1,500	
Natal,	5 t. 2 c.	105	
Delagoa Bay,	100 dms.	22	
Hobart,	20 cs.	33	
Launceston,	20	33	
Sydney,	13	111	
Algoa Bay,	13	20	
Calcutta,	59 pkgs.	47	
Pt. Elizabeth,	1	7	
Odessa,	100 cs.	300	
Melbourne,	200	300	
Soda—			
Montreal,	17 c.	£12	
Mauritius,	12	3	
Soda Crystals—			
Gibraltar,	13 c.	£2	
Newcastle,	35 t. 2	100	
Soda Salts—			
New York,	9 t. 2 cs.	£253	
Sodium Acetate—			
Sydney,	2 t.	£56	
Sodium Carbonate—			
Hamburg,	1 t.	£14	
Sodium Hyposulphite—			
Colombo,	15 kgs.	£9	
Sydney,	2 t.	13	

Sodium Nitrate—

Grenada, 1 t. 1 c. £10

Sulphur—

Philadelphia, 1 t. 13 c. £57

Sulphuric Acid—

Algoa Bay, 5 t. 8 c. £52

Superphosphate—

Timaru, 300 1,062

Tartaric Acid—

Melbourne, 5 c. £25

Adelaide, 1 t. 113

Launceston, 3 15

Newcastle, 10 50

LIVERPOOL.

Week ending May 6th.

Acetic Acid—

Lisbon, 1 t. 10 c. £18

Santos, 4 4

Alum—

Adelaide, 1 t. £6

Beyrou, 1 5

Naplia, 1 8 c. 7

Montreal, 4 18 32

Samsoun, 2 5 11

Havana, 6 10 1 q. 20

Halifax, 4 1 3 20

Hamburg, 2 10 14

Rio de Janeiro, 1 2 6

Alum Cake—

Calcutta, 5 t. 10 c. 2 q. £20

Ammonium Carbonate—

Stettin, 1 t. 13 c. £42

Coronel, 5 8

Ammonium Chloride—

Rouen, 1 t. 8 c. £46

Trebizonde, 7 2 q. 12

San Louis, 3 5

Constantinople, 1 1 30

Ammonium Sulphate—

Barcelona, 99 t. 2 c. £1,059

Hamburg, 100 10 3 q. 1,230

Teneriffe, 5 3 2 63

Valencia, 70 1 1 851

Genoa, 25 6 2 316

Las Palmas, 20 5 2 249

Gr. Canary, 34 11 1 434

Sourabaya, 218 15 2 9,725

Antimony—

Lisbon, 2 cks.

Arsenic—

Maranham, 6 t. 13 c. £95

Oporto, 8 c. 10

Bleaching Powder—

Baltimore, 556 cks.

Bombay, 13

Boston, 673

Catania, 6

Genoa, 31

Leghorn, 21

Lisbon, 6

Messina, 24

Montreal, 47

Oporto, 106

Ghent, 84

Hamburg, 41

New York, 50

Rotterdam, 6

Boracic Acid—

Hamburg, 7 t. 18 c. 2 q. £299

Borax—

Copenhagen, 1 t. 1 c. 2 q. £25

Carbolic Acid—

Boston, 5 t. £310

Genoa, 10 5 3 q. 30

N. Orleans, 10 5 341

Hamburg, 20 15 2 241

Montreal, 9 22

Carbon Bisulphide—

M. Video, 6 c. £10

Caustic Potash—

Montreal, 5 t. 12 c. £390

Caustic Soda—

Adelaide, 35 dms.
 Antwerp, 36
 B. Ayres, 20
 Callao, 85
 Cienfuegos, 40
 Fiume, 30
 Galatz, 130
 Genoa, 130
 Haifa, 70
 Hiogo, 110
 Malaga, 30
 Maracaibo, 10
 Melbourne, 30
 Montreal, 250
 Naples, 35
 N. York, 25
 Oporto, 30
 Pacamayao, 60
 Paranagua, 10
 Pernambuco, 51
 Rotterdam, 8
 Seville, 35
 Sourabaya, 17
 Valencia, 35
 Yokohama, 50
 Aracajou, 10
 Bahia, 10
 Baltimore, 460
 Barcelona, 250
 Boston, 300
 Calcutta, 292
 Carupano, 10
 Havana, 40
 Havre, 45
 Marseilles, 10
 Odessa, 125
 Para, 10
 Philadelphia, 50
 Puerto Cabello, 46
 St. Petersburg, 140
 San Francisco, 209
 Tarragona, 40

Chemicals (otherwise undescribed)Canada, 1 t. 1 c. £25
N. Orleans, 1 c. 6**China Clay—**Bombay, 30 t.
Boston, 813 10 c.
St. Petersburg, 7**Chloroform—**

Montreal, 1 c.

Coal Products—

Aniline Colours—
 Lisbon, 1 c. 1 bx.
 Salonica, 5 c.

Aniline Oil

New York, 18 dms.

Aniline Salts

N. York, 126 cs. 65 brls

Anthracene

Rotterdam, 110 cks.

Cresosote Oil

Copenhagen, 14 brls.

Pitch

Genoa, 5 cks.

Tar

Galatz, 40 brls.

Sierra Leone, 10 c.

Copperas—

Capetown, 1 t. 1 q. £250

Samsoun, 4 7

Copper Sulphate—

Rouen, 103 t. 2 c. £1,730

Galatz, 19 3 q. 16

Volo, 10 8

B. Ayres, 4 15 2 64

Venice, 45 1 2 688

Genoa, 10 3 161

Syra, 1 7 21

Santos, 5 2 7

Disinfectants—

M. Video, 2 cs. 4 cks. £14

Alexandria, 3 7

Gypsum—

Lisbon, 50 bgs. £13

Iron Chloride—

Bordeaux, 20 t. 1 c. £73

Iron Oxide—

Havre, 7 t. 3 c. £50

Iron Sulphate—

Galatz, 5 t. 4 c. 3 q. £11

Lime—

Opobo, 2 t. 5 c. £6

Magnesia—

Mexico, 6 cs.

Trieste, 1

Ferrol, 1

Magnesium Carbonate—

Lisbon, 10 cs.

Magnesium Chloride—

Rouen, 10 t. 3 c. £24

Magnesium Sulphate—

Boston, 32 brls.

Callao, 10

Montreal, 55

Rio de Janeiro, 75 30 kgs.

New York, 1 t. 9 c. £95

Manure—

St. Nazaire, 270 t. 1 c. £741

Metallic Sodium—

Rotterdam, 2 t. 13 c. 2 q. £549

Oxalic Acid—

Madras, 5 c. £7

Paint—

Calcutta, 105 kgs.

Cartagena, S. A., 10 dms.

Charlottetown, 41

Cienfuegos, 2 cks. 40

Genoa, 40

Half Jack, 2

M. Video, 30 cs. 14

N. York, 56 324 brls.

Oporto, 12

Pernambuco, 25

Pt. Said, 6 8

Progresso, 10 cs.

Rio de Janeiro, 1 60

Rosario, 20

Rotterdam, 6

Sagua la Grande, 2 cs.

St. John's, Nfld., 15 cks. 93 10

San Juan, 260 1

Santos, 2 cs. 22 25

Singapore, 7 59

Antofagasta, 5 5

Assinee, 5 12 pkgs.

Gibraltar, 3 20 tins.

Lisbon, 3 58

Mollendo, 4 cs. 2 5 dms.

Quebec, 25 brls.

Rio de Janeiro, 3

St. Croix, 7 40

Sierra Leone, 1 8 48 cs.

Valparaiso, 1

Painters' Colours—

Bahia, 3 cs.

Belize, 2 cks. 1 kg. 99

B. Ayres, 28 1

Calcutta, 1 2

C. C. Castle, 2 85 10

Charlottetown, 2 10

Galatz, 10 brls. 3

Lisbon, 28 3

Madras, 6 21

Montreal, 158 dms. 45

Rangoon, 1 1

Demerara, 2 25 kgs.

Iquique, 2

Pernambuco, 25 kgs.

Paraffin Wax—

Patras, 35 bgs.

Pernambuco, 15 cs.

Phosphorus—

Hiogo, 6 cs. £60

Yokohama, 5 64

Santos, 2 29

Picric Acid—

New York, 1 t. £100

Potassium Bichromate—

Galatz, 5 t. 15 c. £240

Potassium Chlorate—

Oporto, 1 t. £56

Calcutta, 5 c. 15

Naples, 10 31

St. Petersburg, 5 151

Rotterdam, 1 76

Gothenburg, 4 10 281

Hamburg, 4 5 25

Genoa, 3 3 199

Salt—

Adelaide, 155 t.

Akassa, 400

Antwerp, 394 9 c.

Bombay, 200

Bonny, 37 5

B. Ayres, 50

C. C. Castle, 12 10

De Gama, 25

Ghent, 225

Montreal, 567

Newcastle, 600

New York, 280

Old Calabar, 100

Pernambuco, 5 c.

Pt. Elizabeth, 9

Quebec, 1,000

Rio de Janeiro, 2 3

Saltpond, 12 10

San Francisco, 186 13

Shediac, 200

Stockholm, 350 8

Abonnema, 7 10

Accra, 5

Ambriz, 5

Black Point, 5

Boma, 34 5

Boston, 200

Calcutta, 4,587

Cameroons, 16 15

Cape Mount, 6 15

Demerara, 71 5

Iceland, 215

Melbourne, 300

M. Orleans, 365

Opobo, 189 19

Rangoon, 1,000

Rotterdam, 463 13

Yokohama, 13

Saltcake—

Baltimore, 430 t. 15 c. £905

Philadelphia, 50 2 107

Saltpetre—

Pernambuco, 5 t. 14 c. 1 q. £128

Rio de Janeiro, 3 2 70

Rosario, 2 10 53

Sheep Dip—

M. Video, 7 t. 1 c. 3 q. £150

Punta Arenas, 45 dms. 15

Size—

Rotterdam, 20 cks.

Soap—

Algoa Bay, 6 cs. 56 bxs.

Antwerp, 5

Bahia, 1

Barbadoes, 3 1,050

Bombay, 29 1,000 8 cks

Calcutta, 11 21 250 bds.

Cape Town, 54 944

Demerara, 1,950

Durban, 5

E. London, 100 20

Half Jack, 20

Halifax, 20

Havre, 172 300

Kingston, Jam., 1,760

Kurrachee, 500

Lanzarote, 176

Las Palmas, 820 2 cks.

Lisbon, 52

Malta, 14

Montreal, 64

New York, 1 100

Para, 2 0

Philadelphia, 2 440

Pt. Elizabeth, 1,510

Pt. Natal, 500

Rangoon, 2,050 6

Rotterdam, 2,220

St. John's, N. B., 25 322

Nfld., 25 450

St. Thomas, 2,778

Shanghai, 5

Smyrna, 20

Stockholm, 440

Annatto Bay, 30

Antigua, 200

Appam, 100

Bakana, 360

Bathurst, 56

Bonny, 800

Cabinda, 200

Callao, 2

Cameroons, 121

Colombo, 9

Colon, 500

Constantinople, 400

Curacao, 60

Drewin, 112

Gibraltar, 571

Gr. Bassam, 50

Manaoa, 280

M. Pongive, 40

Mumford, 100

Old Calabar, 2,600

Opobo, 6,250

Port Said, 30

Qua Ebo, 500

Quittah, 40

St. Lucia, 70

St. Nazaire, 200

Salt Pond, 212

Santos, 200

Sette Kroo, 38

Singapore, 2,000

Trinidad, 800

Soda Alkali—

Genoa, 35 brls.

Toronto, 50

Soda Ash—

Antwerp, 300 bgs.

Baltimore, 2,735 1,121 cks.

Bombay, 13

Boston, 1,665 358

B. Ayres, 150

Calcutta, 122

Callao, 30 31

Copenhagen, 1,000

Hiogo, 150

Melbourne, 300

Montreal, 77

New York, 8,400 625

Oporto, 15

Philadelphia, 4,387 274 104

San Francisco, 167

Sherbrooke, 614

Sydney, 36

Yokohama, 50

Brantford, 14

Gothenburg, 600 24

Lisbon, 10

M. Video, 30

Puerto Cabello, 54

Rio de Janeiro, 202 100

Varna, 100

Soda Crystals—

Batavia, 40 cks.

Boston, 50 114 bbs 214

Charlotte Town, 25

Don Station, 45

Montreal, 167 19

New Orleans, 140

St. John's, Nfld., 10

Stockholm, 1 614

Bahia, 15

Cairo, 31

Colonel, 54

Ibrail, 35

Salonica, 13

San Francisco, 333

Sodium Arsenate—

Lisbon, 4 cks.

Sodium Stannate—			
Rouen,	5 cks.		
Sodium Sulphate—			
Bombay,	30 bgs.		
Montreal,	10 brls.		
Bombay,	2 t. 16 c. 2 q.	£7	
Spent Oxide—			
Antwerp,	325 t.	£325	
Sulphur—			
Montreal,	1 t.	£7	
Baton,	201 6 c.	779	
Hamburg,	9 9	15	
Varnish—			
Calico,	4 cs.		
Giron,	4		
Montreal,	9		
E. London,	2 2 dms.		
White Lead—			
Bahia,	50 kgs.		
E. London,	10 cks.		
Zinc Chloride—			
Pirzus,	6 t 15 c.	£110	

HULL.

Week ending May 6th.

Alkali—			
Stettin,	20 cks.		
Ammonium Sulphate—			
Stettin,	94 bgs.		
Bleaching Powder—			
Danzig,	48 cks.		
Borax—			
Konigsberg,	9 cks.		
Stockholm,	14		
Caustic Soda—			
Danzig,	164 dms.		
Liban,	30 30 cks.		
Chemicals (otherwise undescribed)			
Amsterdam,	100 pks.		
Antwerp,	22 cks.		
Bordeaux,	70 cs.		
Christiania,	5 41 10 pkgs.		
		295 slbs.	
Danzig,	1 20		
Flushing,	11		
Gothenburg,	17 40		
Hamburg,	34 22		
Konigsberg,	15		
Liban,	50 19		
New York,	110		
Rouen,	10		
Rotterdam,	60		
Stockholm,	1 5 4		
Stettin,	5 0		
Cottonseed Oil—			
Amsterdam,	21 c.		
Antwerp,	285		
Bremen,	50		
Bergen,	125		
Christiania,	69		
Flushing,	384		
Gothenburg,	100		
Hamburg,	485		
Rotterdam,	2,958		
Stockholm,	1,020		
Stavanger,	34		
Creosote—			
Christiania,	1 ck.		
Hamburg,	150		
Liban,	100		
Dyestuffs (otherwise undescribed)			
Danzig,	2 cs.		
Linseed Oil—			
Antwerp,	91 c.		
Bergen,	247		
Christiania,	360		
Drontheim,	86		
Copenhagen,	83		
Hamburg,	205		
Stavanger,	189		
Ochre—			
Copenhagen,	22 cks.		
Rotterdam,	1		
Painters' Colours—			
Amsterdam,	5 cks.		
Antwerp,	6 cs 79		
Bergen,	38 90 pks.		
Bordeaux,	1		
Christiania,	5 163		
Danzig,	41		
Copenhagen,	2 23		
Hamburg,	4 16 4 dms.		
Konigsberg,	13		
New York,	96		
Rouen,	14		
Rotterdam,	19		
Stockholm,	1 7		
Stettin,	9 14 pkgs.		
Stavanger,	1 30		

Pitch—			
Antwerp,	90 t.		
Flushing,	1 cs.		
Size—			
Flushing,	20 cks.		
Soap—			
Antwerp,	20 cs.		
Drontheim,	20		
Tar—			
Amsterdam,	5 cks.		
Antwerp,	1		
Bremen,	100		
Bergen,	19		
Christiania,	20		
Danzig,	5		
Flushing,	6		
Hamburg,	16		
Stockholm,	10		
Stettin,	5		
Varnish—			
Amsterdam,	5 cks.		
Antwerp,	8		
Bergen,	2 3 cs. 2 dms.		
Copenhagen,	1 1		
Gothenburg,	1 7 5		
Hamburg,	3		
Stettin,	1		
Stavanger,	3		
Zinc Chloride—			
Harlingen,	40 cks.		

GLASGOW.

Week ending May 11th.

Ammonium Sulphate—			
Demerara,	135 t. 4½ c.	£1,616	
New York,	34 2¼	379	
Asbestos—			
Hamburg,	3 bls.	£18	
Calcutta,		30	
Bleaching Powder—			
Cape Colony,	2 t. 12½ c.	£32	
Carbolic Acid—			
Philadelphia,	5 t. 15 c.	£104	
Coal Products—			
Benzol			
Rotterdam,	49 pns	£394	
Dieppe,	77 150 brls.	915	
Creosote Oil			
Christiania,	25 brls.	£12. 10s.	
Stockholm,	20	10	
Pitch			
Christiania,	10 t. 3 c.	£15	
Dieppe,	470	600	
Montreal,	45 13	61	
Hamburg,	31 18	61	
Tar			
Christiania,	25 cks.	£12	
Hamburg,	126 brls.	45	
Montreal,	12 t. 1 c.	26	
Stockholm,	30 14. 10s.		
Tar Oil			
Dieppe,	50 brls.	£23	
Colours—			
Montreal,	5 t. 4¾ c.	£293	
Dyestuffs—			
Fustic Extract			
Montreal,		£123	
Logwood			
Montreal,	36 t. 14 c.	£304	
Logwood Extracts			
Montreal,	24 t. 17¾ c.	£586	
Farina—			
Calcutta,	1 t. 18½ c.	£30	
Glucose—			
Cape Colony,	1 t. 14¾ c.	£21	
Linseed Oil—			
Cape Colony,	2 t. 19 c.	£69	
Hamburg,	11	200	
Calcutta,	2 10	34	
Montreal,	4 6¾	93	
Litharge—			
Montreal,	13 t. 19¾ c.	£164	
Magnesium Sulphate—			
Montreal,	6 t. 11¾ c.	£24	
Manganese—			
Rotterdam,	20 cks.	£100	
Rouen,	4 t. 19 c.	48	
Manure—			
Barbadoes,	25 t.	£250	
Demerara,	15 8¾ c.	71	
		500	
Cullern,	344 8½	2,600	
Paint—			
Cape Colony,	7 t. 15¾ c.	£190	
Singapore,	6 2¼	78	
Calcutta,		24	
	3	70	
Bombay,	8 17¾	714	

Painters' Colours—			
Calcutta,		£39	
Paraffin Wax			
Cape Colony,	4 t. 14¾ c.	£149	
Christiania,	11¼	12	
Hamburg,	120 bgs.	206	
Rouen,	1 1¾	26	
Antwerp,	6 18	180	
Stockholm,	13 18¼ 6 cs.	£319. 10s.	
Potassium Bichromate—			
Rotterdam,	20 cks.	£260	
Calcutta,	11 c.	26	
Rouen,	23 t. 6	782	
Montreal,	5 9¾	210	
Antwerp,	13 4	534	
Drontheim,	1 ck.	14	
Potassium Prussiate—			
Rouen,	10¼ c.	£32	
Rosin Oil—			
Hamburg,	5 brls.	£10	
Montreal,	1 t. 5½ c.	£17. 15s.	
Soap—			
Natal,	5 t. 1½ c.	£62	
Sodium Bichromate—			
Rouen,	12 t. ¼ c.	£380	
Montreal,	5 7¾	176	
Antwerp,	12 18¼	127	
Sodium Nitrate—			
Demerara,	4 t. ¼ c.	£41	
Sulphur—			
Demerara,	3 t. 11¼ c.	£22	
Tar Products (otherwise under c'd.)			
Gothenburg,	14 t. 5½ c.	£22	
White Lead—			
Cape Colony,	7 t. 10½ c.	£131	
Calcutta,	2 10	30	
Amsterdam,	8 cks.	13	
Turkey,	6 17¼	84	
Hong Kong,	1 ¼	21	

TYNE.

Week ending May 6th.

Alkali—			
Bergen,	1 t. 2 c.		
Rotterdam,	1 2		
Riga,	53 19		
Gothenburg,	10 9		
Ammonia—			
Odessa,	2 t. 4 c.		
Ammonium Chloride—			
Odessa,	17 t. 11 c.		
Antimony—			
Hamburg,	2 t.		
Rotterdam,	5		
Barytes—			
Hamburg,	100 t.		
Riga,	10 8 c.		
Benzol—			
Bergen,	¾ c.		
Bleaching Powder—			
Hamburg,	20 t. 6 c.		
Antwerp,	20 2		
Genoa,	5 16		
Christiania,	12 13		
Rotterdam,	11 3		
Odense,	3 14		
Gothenburg,	65 5		
Konigsberg,	44 16		
Riga,	66 3		
Carbolic Acid—			
Odense,	12 c.		
Caustic Soda—			
Hamburg,	14 t. 19 c.		
Antwerp,	12 15		
Genoa,	2		
Copenhagen,	2 17		
Aarhus,	13		
Konigsberg,	10 4		
Riga,	20		
Gothenburg,	4 18		
San Francisco,	15		
Copperas—			
Odense,	5 t. 6 c.		
Creosote—			
Aalborg,	7 c.		
Kalnit—			
Drontheim,	2 t. 5 c.		
Litharge—			
Riga,	2 t. 3 c.		
	3 5		
Magnesia—			
Hamburg,	8 c.		
Antwerp,	2		
Genoa,	10		

Paint—			
Hamburg,	5 c.		
Antwerp,	3 t. 3		
Christiania,	17		
Rotterdam,	2		
Potassium Chlorate—			
Rotterdam,	13 c.		
Konigsberg,	10		
Soap—			
Arendal,	1 c.		
Bergen,	5		
Soda—			
Genoa,	25 t. 2 c.		
Christiania,	10 1		
Drammen,	45 3		
Rotterdam,	49 10		
Aalborg,	14 14		
Aarhus,	4		
Gothenburg,	5 6		
Svenborg,	6 9		
Horsens,	5		
Bergen,	5 18		
Tromsø,	1 3		
Konigsberg,	20 2		
Soda Ash—			
Hamburg,	12 t. 9 c.		
Genoa,	10 0		
Christiania,	6 13		
Drammen,	3 1		
Bergen,	3 1		
Konigsberg,	71 1		
Gothenburg,	53 1		
Sodium Nitrate—			
Drammen,	2 t.		
Drontheim,	1 4 c.		
Sodium Sulphate—			
Tuborg,	129 t. 19 c.		
Helgenoes,	250 6		
Sulphur—			
Hamburg,	30 t.		
Antwerp,	5		
Arendal,	10		
Drammen,	100		
Rotterdam,	200		
Ghent,	10		
Drontheim,	50		
Riga,	15		
Gothenburg,	10		
Superphosphate—			
Drammen,	10 t.		
Christiansund,	19 c.		

PRICES CURRENT.

WEDNESDAY, MAY 17

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities

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SATURDAY, MAY 27, 1893.

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ADVERTISEMENTS.

TO MANUFACTURING CHEMISTS AND OTHERS.

TLEMAN (25), now assistant to a prominent
lyst, is desirous of joining Manufacturing Firm as Junior Partner or
with an interest in the business.—Address "Commercial," *Chemical
Journal Office*.

TS, DESIGNS, AND TRADE MARKS ACTS, 1883 TO 1888.

ICE is hereby given that the Cartvale Chemical
Company, Limited, 59, New Sneddon Street, Paisley, Renfrew, North
ave applied for leave to amend the Specification of the Letters Patent No.
1554, granted to Edwin Cave Allan and Frank McKay Allan, for
invents in the Manufacture of Acetic Acid and in Apparatus therefor.
ars of the proposed amendments were set forth in the illustrated official
sents, issued on the 17th May, 1893.

son may give notice (on form G.), at the Patent Office, 25, Southampton
London, W.C., of the opposition to the amendment, within one calendar
n the date of the said journal.

(Signed)

H. READER LACK,
Comptroller General.

Notices.

ers, reports, and correspondence on all matters of interest to the
l and allied industries, home and foreign, are solicited,
ndents should condense their matter as much as possible,
one side only of the paper, and in all cases give their names
resses, not necessarily for publication. Sketches should be
eparate sheets.

ers are invited to forward items of intelligence, or cuttings from
spapers, of interest to the trades concerned.

Advertisements.

Advertisements or Situations Vacant, Premises on Sale or To be Let
ous Wants, and Specific Articles for Sale by Private Contract are
n the *Chemical Trade Journal* at the following rates:—

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Each additional 10 words 6s. 6d. "

Advertisements of Situations Wanted are inserted at one-half the
ates when prepaid, viz.:—

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Each additional 10 words 3s. 3d. "

Advertisements, Announcements in the Directory Columns, and all Adver-
not prepaid, are charged at the Tariff rates which will be forwarded on

Advertisements intended for insertion in the current week's issue
ach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

AMERICAN ASPECT OF THE CHEMICAL TRADE.

DESPITE the depression which has been felt in the
chemical trade during the past four months, there
seems a pretty general feeling in and around New York that
if there are not better things in store, still the depression
will not deepen, while in some cases the future outlook is
considered not so forlorn as some would make it appear.

Sodium nitrate and chemical fertilizers seem to be in a
fairly favourable condition, and the satisfaction which exists
among agriculturists is looked upon as auguring well for the
future.

Heavy chemicals, acids and sulphur, are spoken of in
rather measured tones, more particularly in regard to
forward prospects. The cutting to which both crude and
refined sulphur have been subjected, seems to cause most
anxiety, and, no doubt, this article is feeling the effect of
the advance which its rival—pyrites—is making in popular
favour. It is said that many firms, hitherto only using
sulphur, are altering their plants, so as to adapt them to the
use of pyrites as a source of sulphur dioxide for the manu-
facture of sulphuric acid.

The run on acids last year has caused stocks at present to
be rather low in certain quarters for the time of year, and,
consequently, some pressure has been experienced in execut-
ing current orders. The future is considered very doubtful,
as it is impossible to prophesy what influence the silver
question will have on the market.

Minerals and general drysalteries have, if anything, been
the exception, the trade so far having been pretty brisk,
while the potash syndicate, which controls the Stassfurt
works, seems in a most flourishing condition, the output last
year being one hundred and twenty thousand tons larger
than in 1891, and the present position promises a large
trade at profitable prices.

THE LONDON CHAMBER OF ARBITRATION.

This Chamber has now been in working order sufficiently
long to show whether or not it filled a want. It seems that
though there has not exactly been a rush on it, the number
of cases which have been dealt with amply justify the new
departure, and promise well for its continued success in time
to come.

The number of cases brought before the Chamber will, no
doubt, be increased when the new model clause for insertion
in contracts, &c., providing for disputes arising in connection
with such contracts being submitted to the Chamber, comes
to be more generally used.

Even the comparatively short period during which the
Chamber has been at work, has led to the necessity of mak-
ing certain alterations in the rules. These changes deal with
the fees.

Hitherto solicitors and counsel were allowed fees on the same scale as in the High Court, "but for attending at the hearing only." This provision will in future be omitted, though, why—when the interests of litigants are considered—it is difficult to conceive. The other modification, however, seems reasonable enough.

It will be remembered that the fees of arbitrators were purposely placed at a low figure in contradistinction to the costliness of legal arbitration. Now it often happens that the time which it takes an arbitrator to make his award is much longer than that occupied in the actual hearing of a dispute. It is, therefore, held desirable to consider the drawing up of the award as a perpetuation of the hearing itself, and an addition, giving effect to this alteration, has been made in the arbitrator's and umpire's scale of fees. These are two points which those who have agreed upon the Chamber for reference in disputes will do well to make a note of.

THE USE OF FERRIC SULPHATE AS A DISINFECTANT AND ANTISEPTIC.

BY A. AND P. BUISINE.

THE use of ferric sulphate for the purification of waters has already been demonstrated, but this is not the only service which this remarkable salt is capable of rendering. Among the many applications to which it lends itself, there is one to which it may be well to direct attention more particularly. This is its use as a disinfectant and antiseptic. Since the microbic origin of the greater number of contagious diseases has been established, the employment of chemical antiseptics has tended to increase and become a common usage. It is indeed only by maintaining hygienic conditions, and by the rational use of antiseptics, that we can hope to escape from the terrible epidemics which claim so many victims. Under these circumstances the value of an antiseptic, which is efficacious, cheap, and easy of application, and therefore at the command of all, will easily be appreciated. Ferric sulphate possesses all these qualities, and we are convinced that it is destined to render the greatest services in the disinfection of towns and dwellings.

The commonest and comparatively the most economical disinfectant now in use is chloride of lime. This is certainly the most largely used, especially for the sanitary conveniences in towns during summer and during the reign of epidemics. Many other chemical substances have, however, been proposed for these purposes, usually, it is true, more expensive, but suitable for use in special cases. These products act by virtue of their oxidising or absorbent powers as antiseptics, and can either be employed alone or in mixtures. Among the more important we may cite the alkaline permanganates, alum, sulphate of alumina, ferrous sulphate, salts of zinc, copper and mercury, the sulphites of the alkali or alkaline earth metals, boracic acid, borax, chamber crystals, tar, carbolic acid, salicylic acid, &c. Frequently some of these are mixed with inert powders such as sulphate of lime, chalk, alumina, magnesia, silica, &c. A large number of patents have also been taken out for the use of these substances and mixtures in the form of solutions, powders, or solid blocks for the disinfection of urinals, &c.

The chief inconvenience of all these products is their expense. Moreover, many of them are dangerous and poisonous, and this it is which, no doubt, has prevented their general adoption. The only one material which can be said to be really of importance is chloride of lime, or bleaching powder, but ferric sulphate is capable of replacing even this. Its advantages are very great; it is a very energetic disinfectant; it is not poisonous, and therefore its use is not attended by any danger; it can be employed in a variety of forms, as solution, powder, or briquettes, which are very convenient for use; finally, it is very cheap.

These valuable properties of ferric sulphate are comparatively little known. About ten years ago M. Rohart called attention to one of them. He showed that ferric sulphate is able to form insoluble, very stable compounds, with organic matter, which, moreover, do not undergo putrefaction. The addition of the salt is sufficient to precipitate such substances from solution, and thereby preventing their being re-dissolved, as well as guarding against any alteration on future exposure to the air. In this way urea, uric acid, mucus, gelatine, albuminous matters—in a word, all nitrogenous organic substances are precipitated. These bodies, which themselves undergo putrefaction so readily, thus yield compounds which do not putrify, have no odour, and are unalterable by the action of air. Fresh urine treated by ferric sulphate gives a precipitate which in the dry state contains 5.34 per cent. of

nitrogen and 12.42 per cent. of phosphoric acid. The residue remains absolutely unchanged on keeping. Human excreta, be it solid or liquid, and treated with this reagent may be kept without any fermentation or disengagement of gas.

Animal refuse, such as viscera, after being soaked for some time in a 1 per cent. solution of ferric sulphate and then washed and dried in air, may be kept without any alteration and without giving slightest odour. Small animals may thus be mummified; the flesh retains its colour, but becomes so hard that no impression can be made upon it with the nail. After this operation the pieces retain their shape, and may be preserved without undergoing any change at all.

Ferric sulphate, therefore, behaves towards animal matter in the same way as tannin, and renders it incapable of putrefaction. These results show how greatly the sulphate is capable of altering the characters of organic material, and with what energy it prevents checks putrefaction, and thus gives evidence of its antiseptic power. For use in this direction it is better to take the neutral sulphate (SO_4), an excess of acid being injurious. The preparation of this substance has always been carried out by the oxidation of ferrous sulphate, by means of nitric acid. Obtained in this way it is insoluble, and, moreover, is always strongly acid. It was then determined to prepare a solution of 30–40° B., containing 20–30 per cent. peroxide of iron, and sold at 25 F. per 100 kilos. These conditions would entirely prevent its use on the large scale. Ferrous sulphate was then much cheaper, but it is far less active than the ferric salt in many cases, has serious disadvantages. At the present time ferric sulphate, made by the action of sulphuric acid on burnt pyrites, is very cheap, and can easily be obtained neutral. These circumstances render its use possible, and the fact is the more important because, in addition to the matters already referred to, a largely extended field of usefulness may be predicted for it. Like chloride of lime, it is a powder, which can therefore be easily used and transported, and also without any danger. It presents, moreover, the following advantages over chloride of lime: Its price is much lower (chloride of lime is worth 27–32 F. per 100 kilos, while the highest selling price for ferric sulphate is 5–8 F.). It is much more energetic, and is even when chloride of lime fails. Moreover, the sulphate is without odour, and is unalterable in the air, whilst the chloride has a disagreeable smell, and rapidly loses strength. Finally, it can be used as a solution in water, in the form of powder, and even in the form of briquettes. The disinfecting and antiseptic properties of the sulphate may be explained. The liquids to which it is added lose the greater part of their putrescible matter in the form of insoluble precipitates, and the liquids, in which fermentation is actually proceeding, the products destroyed, the sulphuretted hydrogen being converted into sulphide, and the ammonia into ammonium sulphate, so that the residue is quite removed. Living organisms, such as bacteria, are carried down with the precipitate, and thus rendered inoffensive. The liquids also contain an excess of the sulphate, and are thus guarded against subsequent putrefaction. In addition to this, the liquids rendered slightly acid, by the liberation of sulphuric acid which accompanies the formation of these insoluble compounds. This is a condition of things which is very unfavourable to the growth of germs, and the absence of an excess of the reagent. Ferric sulphate may also be used upon certain bodies as an oxidising agent, passing into the ferric salt, which then rapidly becomes re-oxidised by the action of the air. Finally, it may be used for purifying the air, since it is a sulphuretted hydrogen, sulphur dioxide, and ammonia.

As a disinfectant and antiseptic, ferric sulphate leaves nothing to be desired; it unites all the qualities of the various materials and preparations hitherto proposed for the purpose. Ferric sulphate is now used in many works for treating sewage. The addition of it renders the fluids quite odourless, and produces an abundant precipitate which is removed by the filter press. The nitrogenous cake obtained may be directly used for agricultural purposes. Sulphuric acid may be spread as a powder in the neighbourhood of all used for the reception of human excreta, as, for example, in the closets of public establishments, railway stations, schools, hospitals, prisons, &c. It may be used in the form of a very strong solution for washing any rooms in which infected gases are given off for watering streets and flushing the gutters in times of epidemic infected districts. All smell would also be thus suppressed. It is especially to be recommended in hospitals, where it may be used for disinfecting all vessels.

Other applications readily suggest themselves, such as the disinfection of establishments where readily alterable organic materials are employed, such as breweries, distilleries, etc., for medical purposes, the preservation of anatomical specimens, dissection, etc., etc. In all cases it may be placed in the drains which conduct away the water, which often undergoes fermentation. It is a great advantage to use the salt in the form of blocks, since under these conditions it only dissolves slowly, and therefore has a regular action without waste. These blocks are made by mixing the ferric sulphate got by the action of sulphuric acid on burnt pyrites

idity of water. Combination takes place with evolution of the mass, which is at first pasty, gradually becomes firmer as it forms a solid, compact, very hard block of hydrated baryte. By pouring the mass while still pasty into a suitable mould of any desired shape or size may be prepared. The mass is precisely similar to that which occurs when plaster of Paris is mixed with water. The hydrate formed has the formula $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$. The manufacture of these briquettes is very simple; we have had them made by Messrs. Kuhlmann from many varieties of the sulphate, especially those of 95% and 60%. If these qualities are mixed with 30% of water; the mass is very hot, and the setting takes place very rapidly. The lower sulphate only requires 10% to 15% of water, and sets rather more slowly than the other, but is quite hard after a few hours have elapsed. The bricks thus obtained are of a greyish pink colour, very compact as lumps of cement, and excessively hard. When water they only dissolve with extreme slowness. In a current block weighing 200 grm required 48 hours to disappear. The salt is especially to be recommended for the disinfection of closets, as the blocks may be placed in a cavity made in the pipe, and will thus dissolve sufficiently in the water which quite prevent all odour. The briquettes are moreover very cheap, and their manufacture requires little skill or labour. We especially recommend the use of baryte for this purpose, since it is quite neutral, and therefore does not attack any metal appliances with which it may be brought in contact. Care must also be taken not to use for this purpose such baryte as has been too strongly heated, for, like over-heated plaster, it sets very slowly; such samples also contain large amounts of water which do not behave in this way with water. By a modification of the same process, briquettes may be made up which contain ferrous sulphate in addition to the ferric sulphate. It is thus possible to use the antiseptics mentioned above, as well as plaster of Paris, in only of importance in special cases, for these substances are more active than the sulphate itself, and are invariably more soluble. Baryte of Paris may be made up with the sulphate by simply mixing, containing as little carbonate as possible, with the baryte and moistening with the requisite amount of water. As soon as effervescence due to the decomposition of the carbonate is observed, the mass is poured into a mould and then rapidly sets. Baryte must not be considered entirely as an inert body, since it is capable of action, absorbing any ammonia which may be added in addition to this, it masks the yellow shade produced by the presence of iron formed from the sulphate, which may in some cases be of importance.

The preparation which is likely to be of use in some circumstances is a mixture of ferric sulphate with phenol. We have made briquettes by mixing 16 parts of water, 5 of phenol, and 100 of sulphate of 60%. The phenol is emulsified in the water or moistening the sulphate, and the mass then poured into the mould. The whole sets very rapidly, and the blocks thus formed contain thoroughly mixed with the sulphate; when the mass is added to water, both of these substances gradually dissolve. The mixed briquettes may be expected to be of great advantage, and this is certainly the best and most convenient way of preparing them.

It seems to be no doubt that ferric sulphate will in future be used for many of the purposes enumerated, and will afford special advantage owing to its low price and easy manipulation, for the disinfection of streets and dwelling-houses, or, in fact, for any purpose which requires the employment of antiseptic agents on the large scale.

ROYAL COMMISSION ON MINING ROYALTIES.

The Commission, which was appointed in 1889, has presented its final report, in which the Commissioners state that they arrived at the following conclusions and recommendations:—That the amount paid as royalties on coal, ironstone, and other metals worked in the United Kingdom in the year 1888 was £4,665,043; and that the charge for wayleaves for the same year was £216,000.

The Commission is of opinion that the system of royalties has not interfered with the general development of the mineral resources of the United Kingdom or with the export trade, in coal with foreign countries.

The Commission does not consider that the "terms and conditions under which minerals are made" are, generally speaking, such as to require any further legislation, but they recommend that some remedy should be provided for cases in which a lessee may be prevented, by the action of his own control, from working the minerals he has acquired, and also for cases of certain restrictions upon the assignment of mineral leases.

They are of opinion that where the surface belongs to one person and the adjacent minerals to another, greater facilities should be provided for the working of the minerals.

They are of opinion that greater facilities should be afforded to tenants for life of settled estates in dealing with mineral property.

They think that facilities for granting mineral leases for longer terms should be given to corporations and public bodies, which do not already possess sufficient powers in that respect.

They recommend for the favourable consideration of Parliament any measure which may be introduced, with the concurrence of all parties concerned, for dealing with mineral cases in Cornwall and Devonshire, such as the Bill which was introduced into the House of Commons by Sir John St. Aubyn in 1886.

They consider that your Majesty's Commissioners of Woods and Forests have dealt with the Crown rights to gold in Wales as liberally as was consistent with their duty.

They are of opinion that some measures should be taken to prevent the serious obstacles to the development of the minerals in Ireland likely to arise from the multiplication of small proprietary rights resulting from recent land legislation.

As regards wayleaves, they are of opinion that owners of mineral property unreasonably debarred from obtaining access to the nearest or most convenient public railway, canal, or port on fair terms, or from obtaining underground easements on fair terms, ought not to be left without remedy, and they have made certain suggestions with that object.

THE DISSOCIATION OF BARIUM DIOXIDE.

By H. LE CHATELIER.

ALTHOUGH it is generally stated that the decomposition of barium peroxide by heat is a dissociation at a fixed tension, yet there are no definite experiments upon the subject.

The tensions obtained with the peroxide of commerce, which contains a considerable amount of water, gave numbers which varied considerably for the same temperature, according to the stage which the decomposition had reached.

The author then endeavoured to prepare anhydrous baryta by means of the carbonate and carbon, but found that the product thus obtained did not absorb oxygen at 500°. If, on the other hand, a current of air, saturated with water vapour at 20°, was passed over it, absorption proceeded rapidly; but the product obtained was liquid, and only solidified at 450°. The following method of preparation was finally adopted:—Barium peroxide, containing water, was simply heated in a current of pure and dry oxygen at 700° as long as water was given off. In this way the peroxide is not obtained perfectly pure, but still contains the minimum amount of water necessary to ensure the absorption of oxygen. The tensions observed for an average amount of decomposition are almost equal to those of calcium carbonate for the same temperatures. The following are the results of the measurement made:—

Temperatures.	Tensions.
525	20 mm.
555	25
650	65
670	80
720	210
735	260
750	340
775	510
785	620
790	670

The tensions, however, are higher at the commencement of the decomposition of the peroxide, which has been completely saturated with oxygen and lower towards the end of the experiment.

The dissociation of barium peroxide is therefore a more complex phenomenon than might have been *a priori* expected. It requires the intervention of the vapour of water; the presence of a fused mixture of hydrate of baryta and peroxide of barium is the essential condition for the absorption of oxygen. Under such circumstances the tension of dissociation cannot be rigidly determined, as it cannot be constant until the fused mixture is saturated with peroxide and anhydrous baryta, *i.e.*, is in contact with an excess of these bodies in the solid state. The decomposition of barium peroxide, therefore, presents three distinct phases, and this is confirmed both by experiment and theory.

The limiting tension of dissociation starts at a very great value, theoretically infinite, when the product is saturated with oxygen, so that there is no anhydrous baryta (either in the free state or in solution) in the fused portion. As the decomposition proceeds the tension decreases, until so much anhydrous baryta has been produced that some of it remains in the solid form. From this point the tension remains con-

stant as long as any barium peroxide remains in the solid state. When this substance is present only in the form of solution in the fused mass, the tension decreases regularly, until it finally becomes equal to nothing when the decomposition is complete. The less the amount of water in the substance the higher is the degree of decomposition, which can be reached with a fixed tension; but, at the same time, the establishment of an equilibrium becomes more and more slow. The period of fixed tension disappears altogether when a certain proportion of water is present. This amount is 10 per cent. at a temperature of 450° , but diminishes as the temperature rises. The mass is then completely fused.

The tension of the vapour of water present in the oxygen is quite without influence on that of the oxygen, as long as there are still both baryta and peroxide present in the free state. It has, nevertheless, a considerable importance in the manufacture of oxygen by means of barium peroxide. The fused mixture, as long as it is in presence of an excess of its constituents, has an invariable composition for each temperature; and, consequently, the tension of its water is invariable, as is that of its oxygen, which is equal to the tension of dissociation of the peroxide. If the tension of vapour in the air which serves to regenerate the peroxide, has not exactly this value, there is either an absorption or elimination of water, and consequently a change in the proportion of fusible material. If this diminishes too much, the fixation of oxygen becomes impossible; if it increases too largely all the barium peroxide fuses, and is thus put out of use. The right tension to employ is extremely low, and practically is obtained by imperfections in the drying processes which are adopted, and which are supposed to remove all the moisture from the air. The influence of this small proportion of water is, however, incontestable, for industrial experience has shown that if the drying arrangements be made too perfect the operation does not succeed so well. It is very remarkable to see that, in spite of the apparently insurmountable difficulty of regulating this tension in a convenient manner, it has been found possible, by purely empirical methods, to utilise the same amount of baryta for thousands of consecutive operations.—*Comptes Rend.*

SUGGESTED AMENDMENT OF EXCISE REGULATIONS REGARDING DRAWBACK.

AT its recent meeting, the Chemical Trade Section of the London Chamber of Commerce had under its consideration specially, the suggested amendment of the Excise Regulations relating to the drawback on exported alcoholic medicinal preparations.

Mr. Tyrer intimated that a member of the firm of Messrs. Macfarlane and Co., Edinburgh, wrote to him a little while ago about some trouble they had had with the Customs authorities. The particular trouble was not in any sense with the Excise, but it raised a point which, he was happy to learn, existed nowhere else than in Scotland, so far as he knew. The particular grievance in this case was that, after the inspection of the cases and their despatch to the quay in Edinburgh or Leith, the Customs officers opened the cases, and insisted that they had the right to do so. He had mentioned the matter to Mr. Umney and others, and they all concurred that they had never known of such an experience. An enquiry at an official quarter elicited the answer, "Absolutely no right." That matter had led up to another. Mr. Brown had come up to London, he believed, and among other matters discussed with Mr. Spencer—the successor to the gentleman who had been so good to them all, and did much to get these matters through—the desirability of permitting the exportation of medicinal preparations under the regulation that had been issued, by weight. He had understood Mr. Brown to state—and perhaps Mr. Umney would confirm it—that the attitude of the authorities was in favour of granting, on due representation, the same facilities for the exportation of tinctures, and the drawback on weight as by measure. If that were so, and if further negotiations with the Inland Revenue authorities did not lead to the disturbance of existing facilities—viz., that they could export, by measure or by weight, English or French—he thought that the attempt should be made, and if successful would enable them, in all matters of important practice, to compete with their foreign rivals. He was not *au fait* with the details, but he thought he had stated the facts which had led up to the present position. He would move that a small special committee be appointed to confer with the Inland Revenue authorities, as on former occasions.

Mr. Fred Shaw (Garling and Co.) thought that they ought to have the same concessions that had been granted to the perfumers. He felt sure that such a concession would be a great advantage to the export trade, especially for such markets as India, where tinctures were usually ordered in bottles, and it was difficult to convince native buyers that they could only be supplied with tinctures in pints, and that they had to be charged with the extra weight. An equally important question appeared to him to be the limit of quantity in each case to complete

gallons and bottles of equal contents, and he thought that it was of immense advantage to the trade, and increase the facilities for exporting tinctures, if the General Orders could be amended so as to permit of the export of cases containing any quantity, not less than a minimum of two gallons; say, for example, nine half-gallons, 18 pint bottles, &c., and also to allow half-gallons, quarts, to be packed in the same case. He might say that in all cases received by his firm they had to deviate from their clients' increasing or reducing the quantities, or altering the size of the containers, to conform to the General Orders now existing. It would also be an advantage to be allowed to export these goods in other vessels than glass bottles, say in jars or drums, the size of which might be restricted to complete gallons, without prejudice to the trade. The increased facilities were merely matters of detail, the principle of which had only been discovered in working under the present General Orders, and did not affect the principle of the concession now existing, which had been of such material advantage to the trade generally. He thought that in approaching the Inland Revenue authorities, it was advisable to state at once all that was required to place the trade on an equal footing, as far as possible, with their foreign rivals, in order to derive the full advantage of the important concession now granted.

Mr. Millard (Hewlett and Son) thought that the present limit of pint bottles as the largest vessels in which tinctures, &c., are exported, was distinctly prejudicial to the interests of the trade. It was obvious that it was less trouble to fill forty one-gallon bottles than eighty half-gallon or six hundred and forty half-pints. There was a considerable difference in freight, and other expenses, to be incurred owing to the limit being fixed at half-gallon bottles. He would move that this should be raised to two-gallon bottles, although the trade might be satisfied with one-gallon bottles, the minimum quantity exported at one time to be two gallons, as heretofore. The present arrangement allowed that the same tinctures occurring in the same shipment, although in several cases should, for the purpose of sample, be counted once. That was to say, tincture of aconite might be in 12 cases, but would only count as one kind of tincture in the sample. He would suggest that it would be fair to use the words "at the same time" for "in the same consignment," so that several consignments at the same time tincture of aconite would each would count but as once—provided, of course, that the strength was in each instance the same.

Mr. Umney felt that it would be most advantageous that the trade should be able to sell their tinctures in the same way that the Continental countries did. He confirmed what Mr. Tyrer had said. He thought it would be a great advantage if they could carry out the new arrangement without disturbing the old arrangement.

After further discussion a special committee, consisting of the following gentlemen, was appointed to treat with the Inland Revenue authorities: Mr. Thos. Tyrer, Mr. Chas. Umney, Mr. Fred Shaw, Mr. Lescher, and Mr. Farries.

Agricultural Notes.

INSECTS ON FRUIT TREES.

Just now fruit trees are being very generally attacked by various insects, and the Board of Agriculture has therefore opportunely issued a leaflet detailing the best remedies to be used. The best and most common method is to syringe the trees with a soft soap mixture, by means of one of the machines which are now known. For this purpose several mixtures are given, as follows:

1. The extract of 10 lb. of quassia (obtained by boiling the quassia in water) mixed in 100 gallons of water, and with 7 lb. of soft soap.
2. The extract of 5 lb. of quassia to 100 gallons of water, with soft soap and four pints of paraffin well stirred in.
3. The extract of 5 lb. of quassia to 100 gallons of water, with soft soap and four pints of Calvert's (No. 5) carbolic acid.
4. 8 lb. of soft soap, 2 lb. of finely ground hellebore, and 2 lb. of paraffin, boiled and well stirred together, and added to 100 gallons of water.

In the case of all these mixtures (which can be made in very small quantities for small gardens) the soft soap is dissolved in a tub of water; the quassia chips are boiled in water and put into the tub. Where paraffin is used it should be well stirred up with hot water before it is added to the cold water.

Besides the above harmless dressings a number of poisonous ones are described. These, however, require very great care in their use, and are, moreover, dangerous to stock. Anyone who intends to use them had, therefore, better obtain the circular, and follow the directions very carefully.

Our Book Shelf.

NOTES UPON MAGNESIA ALBA, QUICKLIME, AND OTHER SUBSTANCES By Joseph Black, 1755. 47 pp. Re-Edinburgh: W. F. Clay, 1893. 1s. 6d.

This booklet is a reprint of a paper by J. Black, describing his work on Magnesia Alba, &c., and is the first of a series of "Club Reprints." The historical interest of the paper is part from its historical associations, it will be found interesting and instructive reading. The spelling and punctuation of the work has been strictly adhered to. The description of the experiments in discovering the part played by "fixed air" in altering the action of caustic alkalies when exposed to the atmosphere, and the action of caustic lime on carbonated alkalies and alkaline earths, is faintly described. It hardly seems possible to a young chemist in the present day to realise that only 138 years ago "magnesia" was a term applied indiscriminately to the oxide, carbonate of magnesium. Some of the fanciful names used for ammoniac acids afford quite amusing puzzles. For instance, "magnesia" sounds peculiar, yet it is not hard to see the connection with hydrochloric acid.

From the desirability of enabling students to possess a copy of this valuable paper, which is now very scarce, it is intended to fulfil a wish—namely, to bring before young research chemists a model of inductive investigation and sound, explicit reasoning. No student can fail to be impressed with the lesson which a perusal of the work teaches, especially when account is taken of the great amount of work which then surrounded experimental science. We do not mean to say that half grains in these days when requiring scientific accuracy. From either of the foregoing standpoints this little book is itself to the notice of all interested in chemistry, and with the small advantage of a low price can, we think, hardly fail to be a reward.

ARTS OF DYEING. By Edmund Knecht, Ph.D., F.I.C., and John Rawson, F.I.C., F.C.S., and Richard Lowenthal, Ph.D. 1 vol. of Text and one vol. of Specimens of Dyed Fabrics. Charles Griffin & Co. 1893.

This is a well-written, well-illustrated, and more use to the reader. The stamp of such men as the authors of this kind, men known to the trade as earnest workers, the subjects of which the work treats, will be quite sufficient testimony as to its worth, and on perusal of its pages we are convinced that originality which is necessary nowadays to render any use to those whose daily work brings them in contact with the latest methods and the cheapest processes of production. This work is by no means a compilation from other works, but a translation from foreign sources put into an English form, one of its predecessors have been, but it is a successful attempt with the subject as practised to-day, and to put the information in a practical and systematic form.

The theory of dyeing and the chemical technology of the subject are treated in chapters I. and II., we find the third part devoted to a description of water, from which the reader will derive many valuable

and bleaching occupies part IV., and is well illustrated by the various appliances in use.

The treatment of acids, alkalis, mordants, &c., and is a complete treatise on the properties of all the chemicals used by the practical dyer, moreover, the great acquaintance of the authors with the details of processes outside the dye house, and which should be known by all rising chemists.

The second volume, which closes the first volume, treats of natural colouring matters, indigo, logwood, fustic, quercitron, weld, Persian berries, madder, cochineal, and cudbear, cochineal, kermes, galls, and gamboge. The opening paragraph on page 1 of the second volume is of the fact that history repeats itself. We read that in the year 1857, the cultivators of woad contended that indigo was a fugitive dye, but a corrosive and pernicious drug, so that it was issued condemning anyone to death who used it. It was against the supposed poisonous character of the aniline dyes years ago did not reach this length however.

The last chapter, commencing with chapters VII., VIII., and IX., are of a very practical character, and comprise the artificial organic dyes, the mineral colours, and the machinery used in the dyeing process. In the last chapter we find a judicious selection of English machinery, which will well repay careful reading. The work is a treatise on experimental dyeing, and will be of great assistance to the student, to whom this kind of work is usually a sealed

The concluding chapter, XI., contains a description of the methods usually employed in the analysis and valuation of the materials used in dyeing, and this part alone will soon cause it to find a place in the laboratory of every dyeworks, if it has one.

METAL COLOURING AND BRONZING. By A. H. Hiorns. 328 pp. Index. London: Macmillan & Co. 1892.

The methods of colouring metals by chemical means and electro-chemical deposition, &c., have grown to such an extent in this country, particularly in the Midlands, that it is now worthy of recognition as one of the arts. No systematic study, however, seems to have been made of the methods and solutions employed except in one or two isolated instances. The author has, therefore, in conjunction with another gentleman, carried out a number of experiments testing the various recipes which are in existence. The book is divided practically into three sections—Chemical metal-colouring, electro-chemical metal-colouring, and mechanical metal-colouring. The first division contains a review of the properties of the chief metals and non-metals bearing on the subject and the preparation of the metals for the bronzing process, and the methods employed in making the solutions used. The work abounds with formulae and recipes, and is thoroughly practical, all the methods having been tested by experiments. The results of the experiments seem to show that many recipes require experience before they give good results. The peculiarity and special advantage of the book is its practicability. The phenomena observed in actual working are fully but clearly recorded, and every experiment seems to have been productive of helpful and suggestive facts. Further than this the book needs no recommendation to decorative metal workers. The remedies for accidental poisoning by acids, alkalis, cyanides, and metals will be acceptable to those who have large workshops and employ labour for carrying on this industry.

TIPS FOR TRADERS.

ALCOHOL is now being made in the provinces of Mendoza and San Juan, in the Argentine Republic.

SUGAR is likewise made at Tucuman, in the same Republic.

PETROLEUM LAMPS and general lighting apparatus is likely to meet with a good demand in Russia, as there is only one works, which turn out very inferior work.

AGRICULTURAL IMPLEMENTS and lamps are much inquired for in Guatemala.

TARIFF CHANGES.

There are from time to time many alterations in the Customs regulations abroad which it is as well for those trading in chemicals, paints, oil, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

OXIDE OF ZINC powder is dutiable at 1¼ cents per pound under the sixtieth paragraph of the United States Customs Tariff.

COPRA is subject to a duty of 20 per cent. under section 4.

CREOLINE is dutiable at 25 per cent. under the seventy-fifth paragraph of the New Tariff.

BOG ORE in a crude state, containing over 53 per cent. of metallic iron, to be used for purifying gas and not as a paint, has a duty of 75 cents per ton levied under the one hundred and thirty-third paragraph of the New Tariff.

CADMIUM YELLOW is subject to a duty of 25 per cent.

MINERAL WHITE, containing 7·10 per cent. of starch, is dutiable at 20 per cent. under section 4 of the New Tariff.

MAGNESIUM CHLORIDE is assessed for duty as a chemical salt.

KEROSENE OIL is subject to an import duty of 25c. per gallon at Ceylon.

INDIGO has a duty of 1 rupee per kilo. at Mauritius.

PETROLEUM OIL has a duty of 3 rupees for hectolitre.

CASTOR OIL is dutiable at 3 rupees per 100 kilos.

POSTAL CHANGES.

There is an express letter delivery service now in operation between this country and France, by means of which letters can be delivered by special messenger. The arrangement does not yet extend to Algeria.

The Portugal parcels and sample post, which had to be suspended on account of quarantine, has been once more resumed.

There has been a reduction in the charges made for parcels going by parcels post to Canada. The charge is now 10d. for the first pound, and 8d. for each additional pound or fraction thereof.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending May 13, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'42	10'12	0'32	Nil.
South Metropolitan Gas Co.	6	16'46	11'55	0'63	Nil.
Commercial Gas Co. ..	2	16'50	8'25	0'20	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the proportion of total sulphur contained in the Leeds gas during the month ended May 11, 1893, has averaged 15'84 grains per 100 cubic feet. The following are the results of tests made at the works in grains per 100 cubic feet.

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	April, 1893.	May 1893.			Weight.	Volume.
Meadow Lane,...	22. 29.	5. 8.	12'72	0'20	37'05	0'07
New Wortley	21. 25.	3. 11.	18'44	1'17	57'05	0'07
Vank Street	20. 27.	6. 10.	14'39	0'32	40'75	0'05
Average at Works ..	..	..	15'84	0'73	57'05	0'07
Average at East Parade	..	..	16'08	1'09	65'20	0'08

During the month the average illuminating power of the Leeds gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 18'3; standard batwing, 19'0; Sugg's illuminating power meter, 18'3.

Parliamentary Jottings.

TRADE UNIONS AND TECHNICAL SCHOOLS.

In the House of Commons, last week, Mr. A. Gibbs asked the Vice-President of the Committee of Council on Education whether objections had been raised by trade unions against the instruction in technical schools of persons not connected by their ordinary employment with the industry about which they desired to be taught, and whether the managers of such schools, either in London or elsewhere, had consented by agreement, or tacit understanding, or in any other way, to exclude students unconnected with the trade about some branch of which instruction was being given; and whether, in view of the fact that these technical schools were designed to give instruction to all persons who might desire it, and that the Charity Commissioners had allotted large sums derived from charitable sources to founding and supporting such schools, he would take steps to secure the open use of these schools by all who might wish to attend them?

Mr. Acland replied that he believed that the objection raised by trade unions had had considerable weight. It was not the function of technical education, as understood in England, to teach trades, but rather to supplement workshop practice by a knowledge of scientific or artistic principles connected with certain industries. That being so, it might be reasonably held to be undesirable to admit to certain kinds of technical classes those who had not the foundation of workshop practice. If a number of amateurs were admitted to such classes, the teaching given would have to be distorted or largely changed. It was mainly a question of organisation for the governing bodies themselves, and he saw no reason to interfere.

THE FACTORY AND WORKSHOPS ACT (1891) AMENDMENT

This Bill, backed by Sir H. James, Sir Henry Ross Mowbray, and Mr. Fenwick, has been introduced into the Commons and printed. It provides that, in case of payment for every person shall be supplied with his work by the factory or workshop with sufficient particulars in writing to enable him to ascertain the rate of wages at which he is being paid for his work. The disclosure of such particulars by an operative with a view to the object for the purpose of gain, shall involve the infliction of penalties, and anyone soliciting such disclosure will be punished.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official colonial statistics of the United Kingdom, give the annual value of alkali and bleaching materials shipped to the undermentioned countries during the month of March, 1893, as compared with the same month in 1892:—

ALKALI.

Port.	1892.	1893.	1892.
	Cwts.	Cwts.	Cwts.
Russia	12,425	10,769	5,746
Sweden and Norway	6,268	6,156	2,615
Germany	6,571	11,424	2,775
Holland	5,482	8,600	1,790
France	3,642	6,215	1,631
Spain and Canaries	16,694	16,925	7,205
Italy	17,915	18,243	7,859
United States	353,407	518,509	125,368
Australasia	9,317	16,346	3,819
British North America ..	9,062	8,787	3,031
Other countries	87,076	66,735	33,790
Total	527,859	688,709	195,629

BLEACHING POWDER, ETC.

Port.	1892.	1893.	1892.
	Cwt.	Cwt.	Cwt.
United States	81,051	104,478	33,383
Other countries	33,354	42,033	12,708
Total	114,405	146,511	46,091

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

D.K.—We do not know of any firm over here who can give you a quotation should advise you to write to the patentee direct. His address is Dr. Produites Chimiques, Villafranca, Italy. We trust you will receive a source of information when writing.

P.C. Co. (Breconshire).—If in good condition, treble ordinary price and viz., 9½d. If agreeable please send on, and will remit per return.

A. & W.—It has been forwarded.

L.B.—We shall be pleased to hear further from you.

NEMO.—See answer to "D.K."

R.E. & Co.—We await your reply to our last.

RESTRICTIONS OF TRADE BY THE CUSTOMS

(To the Editor of the Chemical Trade Journal.)

SIR,—I have read the account of the German Colour Industry your moral reflections. May I also make my remarks.

In the German works very large quantities of pure Methyl Alcohol are used, and the colour produced finds an important market in England, free of any Customs or other duty. Our English manufacturers are forbidden the use of this pure Methyl Alcohol and payment of a duty of about 17s. per gallon, or under restriction they do not care to adopt.

This is called free trade, and so it is for the Germans.

Yours, etc.,

London, May 20th, 1893.

E. B.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is little change to report in the Tar products market. Benzol is a drug, and to do any amount of business lower prices than are ruling to-day would have to be taken. Crude Naphtha is cheap, and crude Carbolic, though easier, is still in good demand. Anthracene remains as already quoted, and pitch sales are being made at 23s.

The sulphate of ammonia market is very firm notwithstanding the interference of the holidays. The fact is that stocks are so low, that any undue demand would have a serious effect upon prices so far as consumers are concerned, and, as many dealers have sold forward to the end of the year and beyond, they are at their wit's end to know how to whittle off each advance. Beekton price is £12. 5s.; outside London makes being £12, Hull, £11. 15s., and Leith £12.

MISCELLANEOUS CHEMICAL MARKET.

The position of the market has undergone little change in the past week, prices of all the leading makes in the Alkali trade being practically unchanged. For Bleaching Powder there is still good enquiry, and a fair amount of business doing for export; the price remains steady at £8. nett per ton from makers' works, and £8. 10s. f.o.b. Liverpool and Tyne. In Soda Ash there is no improvement in value, prices being 1½ to 1⅞ per degree f.o.b. for Alkali 58%. In Caustic Soda there is no change either for prompt or forward deliveries, current values being f.o.b. Tyne 77%, £11. nett; f.o.b. Liverpool 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; Cream 60%, £8. 5s. ten ton lots and upwards. Soda Crystals £3. per ton f.o.b. Recovered Sulphur still quoted £4. 2s. 6d. f.o.b. Sulphate of Copper in good demand £16. 5s. to £16. 10s. f.o.b. White Powdered Arsenic continues still short in supply and price firm at £14. nett. Alum £5. 2s. 6d. f.o.b. Liverpool. The demand for Potash, Caustic and Carbonate, is still extremely quiet. No changes have taken place in values recently. Nitrate of Soda has returned almost to its lowest point. Trade generally in miscellaneous chemicals is still reported very quiet in all districts.

LIVERPOOL OIL AND COLOUR MARKET.

OILS.—Palm oil remains firm, though sales are rather restricted. Such business as has been done has been for full prices, and last week's quotations stand. In olive there has been rather more doing. Messina is quoted £36. 5s. per ton. Linseed: Liverpool makes in export casks keep steady, but the market is quiet at 20s. 6d. to 21s. per cwt. Rape: refined Stettin is steady at 29s. per cwt. Cotton-seed is easier and prices have declined, Liverpool refined being quoted 23s. to 24s. 6d. per cwt. Castor oil is steady, with rather more inquiry for good seconds Calcutta at 2½d., and first pressure French at 2½d. to 2¾d. per lb. Tallow business is better and prices are steadier, with North American at 28s. 6d. to 31s. and Australian 29s. to 33s. per cwt. Resin: common is rather quiet at 2s. 7½d. to 2s. 9d. per cwt. Spirits of turpentine are steady but, if anything, a shade quieter with sellers at 23s. 9d. to 24s. per cwt. Petroleum is unaltered at 4½d. to 5¼d. for American, and 4¼d. to 4½d. per gallon for Russian refined. The market was closed from Saturday to Wednesday last.

COLOURS unchanged and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23 to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

OILS.—The terms of settlement between the masters and men are now definitely arranged for resuming work on Tuesday. Already the places which have been so long desolate are all alive with animation. It seems to be too long to wait another 36 or 48 hours. All hands itch to be doing something again, and express surprise that such a trifling

matter should have caused so much uproar and misery. The prices are:—Linseed oil, dull; spot, 19s. 9d.; forward, May/Aug., 19s. 6d.; last four months, 18s. 6d. sellers; cargo flat, spot naked, 21s., and to Aug.; crude, 19s. 6d. to Oct. rape oil is firm at 26s. 6d. in casks, for spot; turpentine, 23 petroleum, jelly, orange, and red sorts, 28s. per cwt.; olive oil to £42. per ton.

CAKES.—Already this market is beginning to be affected, of the mills resuming work this week, more especially lined, the prices for which are: 95%, pure, £9. to £9. 5s.; ordinary, to £7. 7s. 6d.; Russians, £8. 12s. 6d. to £8. 15s.; Polish, £8. Cotton cakes are steady, and more in demand; best makes, £3. 5s. 10s.

PAINTS.—Business in these goods is very good, many firms compelled to shorten their holidays, in order to get orders out. Prices are without variation. French ochre, J.C., 65s. Venetian red, £6. to £10. per ton; oxide of iron, £9. to £18. Fine linseed oil putty, £6 per ton; ready-mixed paints, in tins of 1 lb. to 14 lbs., 20s. to 30s. per cwt, according to brand.

THE LIVERPOOL MINERAL MARKET.

The mineral market continues to improve. Manganese: All small, and only of inferior quality; demand much better, improved prices. Borate, 7d. per lb.; sulphate, £21. 10s.; coal 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. M (raw lump) is very quiet; raw ground, £6. 10s., and calcined 10s. Bauxite (Irish Hill brand): Shipments are very large, likely to increase; lump 20s., seconds 16s., thirds 12s. Chalk: the demand for "Angel White" continues very strong, prices are firm. Barytes: Carbonate scarce; nuts, 72s. 6d.; finest white sulphate is in demand. "Angel White," No. 1, No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. L flat, Bilbao, Irish, and Cumberland slow. Santander and ferrous are quiet. Emerystone firm; No. 1 lump, £5. 10s. to smalls, £5. to £5. 10s. Fullers' earth steady; best lump, 59 impalpable ground, £7.; "Emerald" ground, 80s. 8d. wolfram, tungstate of soda, and tungsten metal are firm. Ore: The demand much exceeds the supply, in consequence of Australian crisis the prices are advancing rapidly. Antimony easier at £11. 10s., and metal £43. to £45. Asbestos firm. Lead ore, smalls, £10. 10s. to £11. Calamine strontia (celestine) quiet. Limespar steady, especially for English murex; old G.G.B. brand in demand at 50s. (ground), quiet. Fluorspar: Best quality scarce. Ferro-manganese imp. Plumbago: Spanish, £5.; best Ceylon lump at last quoted Italian and Bohemian, £4. to £12. per ton; "Founders," £5. Blackwell's "Mineraline," £10. French sand, 20s. to 2. Ground mica, £45. to £50. China clay steady, common, 18 good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at R. Bog ore (oxide of iron); finest quality 25s. to 30s.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TRIN

The chief—and indeed about the only—new feature in the renewed firmness of sulphate of ammonia. Towards the end of the week buyers had to pay up to £12 for prompt supplies, and makers' quotations have gone above that mark. The article is scarce, and there is good prospect of fair prices being for some time maintained.

The dealing in the alkalis and other ordinary chemicals, without life, as heretofore, with the single exception of lime powder, which is firm, though probably not quite up to the strain of late ruling, and with the £8 5s. price still very usual to all appearances.

Dye chemicals are for the most part in somewhat improved demand, but the turkey red works all report slackness, coupled with stoppages. Bichromates remain at the combination prices of a year ago, but there is still a marked absence of activity.

Mineral oils and paraffins continue depressed, but without recession in prices; 865° oil shows most firmness of the lot, but stationary so far.

Chief prices current are:—Soda crystals, £2. 10s. soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 70s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/65s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; and

24c; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¼d., less 5% Liverpool; nitrate of soda, 9s. 3d. to 9s. 4½d.; sulphate of ammonia, £12 to £12. 3s. 9d. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33., less 2½%, any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin spirit (naphtha) 4¼d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 865°, £3. 15s. to £4.; 885°, £4. 5s. to £5. 15s., and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 72,250 bags.

THE METAL MARKETS.

LONDON, TUESDAY.—Pig iron quiet. Scotch warrants closed at 40s. 3½d. cash. Middlesbrough 33s. 8d. cash and hematite 44s. 8d. cash. Copper dull: Chili bars, G.O.B.'s and G.M.B.'s closed at £43. 1s. 3d. to £43. 8s. 9d. cash. Tin quiet: Straits closed at £88. 2s. 6d. to £90. cash and £86. three months. Australian £91. 5s. cash; English ingots, £93. Lead, dull: Spanish, £9. 11s. 3d. English, £9 16s. 3d. Silesian spelter: Ordinary, £17. Nickel, 1s. 8½d. per lb. Antimony, £40. Quicksilver, unaltered. *Copper shares* slow: Cape, 1½ to 1¾. Copiapo, 2 to 2½. Libiola, 3 to 3¼. Mason and Barry, 2½ to 2¾. Rio Tinto, 15½ to 15¾; Tharsis, 4½ to 4¾; Namaqua, ¼ to 1; Panulillo, ¾ to 1.

GLASGOW, MONDAY.—Market steady, with small business. Scotch done at 40s. 3½d. and 40s. 4d. cash, also at 40s. 6½d. one month; closing with buyers at 40s. 3½d. cash, and 40s. 6½d. one month, sellers ask ½d. higher. Middlesbrough closes with buyers at 33s. 8d. cash and 33s. 10½d. one month, sellers 1d. dearer. Cumberland hematite closes with buyers at 44s. 8d. cash, and 44s. 10d. one month; sellers ask 44s. 9d. cash and 45s. one month. Middlesbrough hematite closes with buyers at 42s. 3d. cash, sellers ask 42s. 6d.

TYNE CHEMICAL REPORT.

TUESDAY.

Shipments of chemicals from the Tyne continue to be fairly heavy and business steady, with more orders for caustic soda. Bleach firm at £8. 5s f.o.b. Prices of other articles unchanged.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5 per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8¼d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blane fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28 10s.; hydrate of barium, £10. per ton nett.

South Durham salt.—There is a fair demand; price unaltered.

Coals continue steady; prices as under:—Best Northumbrian, 8s. 9d. per ton; second qualities, ditto, 8s. and 8s. 6d. per ton; small steam, 3s. 6d. and 3s. 9d.; bunker coal, unscreened, 6s. per ton; best Durham screened, 8s. 6d.; gas coal in limited demand, 6s. and 6s. 6d. per ton; manufacturing and household coals, quiet and weak in price.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, May 17th, state:—

Charters for the past fortnight are cabled as 650 tons, making the total quantity since 31st December 6,900 tons, against 8,300 tons same time last year. Exchange 14¼d. to 14½d.

Copper G.O.B.'s and G.M.B.'s.—The sales during the past fortnight amounted to about 5,300 tons, and prices declined about £1. 10s. per

ton; this, notwithstanding good figures, showing decrease in stocks and visible supply, as will be seen below, but the unsatisfactory financial difficulties in Australia, and also in America, have caused a depression in the metal markets, which accounts for the fall in values. We close steady to-day at £43. 1s. 3d. cash and £43. 13s. 9d. three months.

Furnace material is not commanding quite such high prices, but suitable parcels obtain full market values. So far we have no indication that any Anaconda produce will be shipped to England.

The Tharsis Sulphur and Copper Company, Limited, has just arranged a contract for the shipment of about 180,000 tons of copper ore from its mines at Huelva, to Glasgow. The ore is to be delivered in the Clyde over a period of three years, at the rate of about 60,000 tons a year. The tenders accepted were those of Messrs. Morrel Brothers & Company, of Cardiff; and Mr. Hugh Hogarth, of Glasgow and Ardrossan.

The Rio Tinto Company notify that at the eighteenth half-yearly drawing of their five per cent. bonds, 1884, and at the first half-yearly drawing of the 1892 issue, to be held on the 1st proximo, bonds amounting to £11,120. and £6,380. respectively will be drawn to be paid off at par on the 1st July.

The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 1,605 tons for the fortnight. The stocks include about 1,300 tons of copper sold, but not yet delivered to smelters. 4,500 tons of Calumet and Hecla copper have been sold to American consumers at 11d. per lb. The visible supply shows a decrease of 1,797 tons for the fortnight. The total deliveries for the fortnight are 4,591 tons. The present stock of English G.M.B.'s in warehouse, Liverpool and Swansea, is 244 tons, against 279 tons on the 1st inst. The delivery in Liverpool and Swansea was 35 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts are quiet, quotations being:—Tough cake, £46. 15s. to £47. 5s.; best select, £48. to £48. 10s.; Indian sheets, £51. 10s. to £51. 15s.; strong sheets, £55.; and yellow metal sheets, 4½d. to 4¾d. per lb.

The sales of furnace material comprise—at Liverpool: 2,000 tons Argentiferous montana Matte, 37 tons Argentiferous Chili Regulus, and 230 tons Australian Argentiferous leady matte, on private terms; 100 tons ordinary montana matte, at 9s. 1½d.; 50 tons Columbia matte, at 9s. 4½d.; 100 tons Argentiferous Mexican matte, at 9s. 6d.; 27 tons Chili ore, at 9s.; 30 tons Mexican ore, at 8s. 9d.; 150 tons Mason's yellow ore, at 8s. 6d. for 6 per cent.; 780 tons Tilt Cove ore, at 8s. 6d.; and 45 tons Cueva de la Mora Precipitate, at 9s. 3d. per unit. at Swansea: 580 tons Namaqua ore, at 8s. 9d. per unit.

New Companies.

Ruchill Chemical Co., Ltd.—CAPITAL £5,000. in shares of £1 each. This company has been formed to acquire and enlarge the premises known as the Ruchill Chemical Works, near Glasgow, N B., and to manufacture tar products and chemicals of all kinds.

Equitable Paint and Varnish Syndicate, Ltd.—CAPITAL £3,000. in shares of £5. each. The company has been formed to acquire the lands, plant, and machinery of the Equitable Paint and Varnish Co., of City-road, E.C., and to manufacture the specialities of the company, and to manufacture paints and varnishes, &c.

Hugon and Co., Ltd.—CAPITAL £10,000 in 999 ordinary £10 shares, and one founder's share of £10. The object of this company is to carry on the business of fat and tallow melters and refiners. The subscribers to the memorandum of association are:—P. Tatham, Wilmslow, Cheshire, merchant; H. H. Smith Carew, Manchester, engineer; F. Edmondson, Paignton, Cheshire, merchant; B. D. Kenyon, Eccles, merchant; F. Mertens, Tapston, merchant; J. Oldham, Aysgarth, Eccles, merchant; J. R. Hugon Stafford House, Eccles, manufacturer.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in the Manufacture of Gas from Oils and Apparatus therefor. J. Laing. 9,141. May 8.
Separating Gases of different specific gravity and in apparatus therefor. W. P. Thompson. 9,177. May 8.
New Colouring Matters. J. C. L. Durand, D. E. Huguenin and A. J. J. D'Andiran. 9,182. May 8.

New Colouring Matters. J. C. L. Durand, D. E. Huguenin and A. J. J. D'Andiran. 9,183. May 8.
 Improvements in the Manufacture of Paint. W. H. Hyatt. 9,194. May 8.
 Improvements in the Construction of Coke Ovens. W. H. Telford. 9,230. May 9.
 Improvements in the Construction of Coke Ovens. W. H. Telford. 9,231. May 9.
 Recovering Tin from Tin Plates and other Tin Waste. C. W. Kriens and J. R. Harper. 9,257. May 9.
 Improvements in the Manufacture of Manganese Peroxide. G. S. Albright and J. J. Hood. 9,271. May 9.
 Preparation of Drying Oils. H. H. Lake. 9,291. May 9.
 Thickening Drying Oils. H. H. Lake. 9,292. May 9.
 Improvements in the Manufacture of Paints. H. H. Lake. 9,293. May 9.
 Improvements in Salt Purifiers. T. Craney. 9,294. May 9.
 Improved Electrolytic Apparatus. T. Craney. 9,295. May 9.
 Apparatus for the Electrolysis of Salt. T. Craney. 9,296. May 9.
 Improved Electrolytic Apparatus. T. Craney. 9,297. May 9.
 Bleaching Oils. W. N. Hartley and W. E. B. Blenkinsop. 9,315. May 9.
 New Compound for Treating Sewage. Gr. Whalley. 9,359. May 10.
 Production of Artificial Chalybeate Water. O. March. 9,362. May 10.
 Manufacture of Bouillie Bordelaise or Bordeaux Mixture in Powder. G. F. Strawson. 9,415. May 11.
 Improvements in Petroleum Fired Furnaces. S. Marsden and G. C. Marlow. 9,506. May 12.
 Apparatus for Concentrating Sulphuric Acid. G. Siebert. 9,514. May 12.

Improvements in the Manufacture of Sulphate of Lead. W. J. and J. J. Lundy. 9,521. May 12.
 Improvements in Obtaining Copper. E. Casper. 9,619. May 13.
 Improvement in Apparatus for Purifying Coal Gas from Sulphur Foulis and C. Hunt. 9,634. May 13.
 Improvements in Blow Pipes. J. H. Sanders. 9,635. May 13.
 Improvements in Boiler Furnaces. L. F. Pearson. 9,644. May 13.

Gazette Notices.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

RYLANDS DAN (trading as the Rylands Main Colliery Co and the Rylands and Brick Works Co.), Shepcote, and Rylands Main Colliery, and Quarry and Brick Works, near Barnsley, colliery proprietor, quarry and brick manufacturer.

Adjudication.

HARTLEY WM., present address unknown, late carrying on business Tyneside Melting and Refining Co., at Mushroom Quay, Newcastle-on-Tyne.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 13th.

Acetic Acid—
 Holland, 20 pkgs. A. & M. Zimmermann
 Belgium, 8 Sawyer, Mead & Co.
Acetone—
 Holland, 2 pkgs. Hernu, Peron & Co.
Antimony—
 France, 56 t. Novelli & Co.
 Italy, 25 J. Batt & Co.
 Spain, 35 c. J. Batt & Co.
 Portugal, 50 J. Bamber
Asbestos—
 France, 413 Flageolet & Co.
 U. States, 43,000 Beck & Pollitzer
Barytes—
 Holland, 19 cks. O'Hara & Hoar
 Germany, 63 W. Harrison & Co.
 " 46 Magee, Taylor & Co.
 " 57 W. Fenton
 Belgium, 50 Burrell & Co.
Bone Meal—
 E. Indies, 200 t. A. Hunter & Co.
Boracic Acid—
 Italy, 40 pkgs. J. Puddy & Co.
Caoutchouc—
 U. States, 61 c. Prop. Bull Wf.
 France, 15 Flageolet & Co.
 Argentina, 84 Prop. Bull Wf.
 Germany, 6 T. H. Lee
 E. Indies, 286 Henderson Bros.
 " 70 E. Barber & Co.
 Madagascar, 12 S. Figgis & Co.
 " 22 Proctor Bros.
 Spain, 16 Hernu, Peron & Co.
 Cape, 4 L. & I. D. Jt. Co.
Castor Oil—
 E. Indies, 305 cs. H. A. Litchfield & Co.
 France, 3 W. G. Frith & Co.
 Italy, 10 Fellows, Morton & Co.
 E. Indies, 32 cks. Ross & Deering
Caustic Potash—
 Belgium, 23 c. C. Lamb & Co.
 France, 21 dms. Spies Bros. & Co.
Chemicals (otherwise undescribed)
 Germany, 5 pkgs. Philipps & Graves
 Holland, 10 R. Morrison & Co.
 Germany, 733 A. & M. Zimmermann
 " 5 W. H. Cole & Co.
 " 72 Craven & Co.
 France, 410 C. Brumlen & Sons
 Italy, 11 G. S. N. Co.
 Germany, 63 pkgs. T. H. Lee
 " 20 F. Stahlschmidt & Co.

Holland, 410 A. & M. Zimmermann
 France, 2 pkgs. Hernu, Peron & Co.
Coal Tar Dyes—
 Germany, 5 pkgs. T. H. Lee
Cobalt Ore—
 Australia, 1/2 t. L. & I. D. Jt. Co.
Cobalt Oxide—
 Germany, 2 cks. L. & I. D. Jt. Co.
Copper Sulphate—
 Belgium, 11 pkgs. B. & F. Wf. Co., Ltd.
Cream of Tartar—
 France, 20 pkgs. R. Morrison & Co.
 " 34 W. C. Bacon & Co.
 Holland, 47 Middleton & Co.
 France, 10 B. & F. Wf. Co., Ltd.
Dextrine—
 Germany, 50 pkgs. H. Lorenz
Dyestuffs—
Annatto
 France, 5 pkgs. Beresford & Co.
Anthracene
 Holland, 221 pkgs. Burt, Boulton & Co.
Argols
 Italy, 1,368 pkgs. B. Jacob & Sons
Cochineal
 Canaries, 10 pkgs. Sperling & Williams
Divi Divi
 E. Indies, 121 pkgs. Walker, Munroe & Co.
 " 17 L. & I. D. Jt. Co.
 " 26 R. & J. Henderson
Extracts
 Belgium, 203 pkgs. A. J. Humphrey
 " 70 L. J. Levinstein & Sons
 " 10 T. H. Lee
 " 20 L. J. Levinstein & Sons
 Holland, 8 J. Owen
 Germany, 2 Williams, Torrey & Co., Ltd.
 Belgium, 5 Leach & Co.
 France, 20 Beresford & Co.
 U. States, 23 J. Graves
 Denmark, 6 M. D. Co.
 " 2 R. G. Fullwood & Bland
 France, 15 Bennett S. S. Co.
Fustic
 Jamaica, 12 t. L. & I. D. Jt. Co.
Gambier
 E. Indies, 670 pkgs. Butler's Wf. Ld.
 " 166 Brown & Elmslie
 " 122 R. & J. Henderson
 " 1,123 E. Boustead & Co.
 " 993 L. & I. D. Jt. Co.

Singapore, 199 E. Boustead & Co.
 " 831 Butler's Wf. Ld.
 E. Indies, 54 Brinkmann & Co.
 " 1,063 Beresford & Co.
Indigo
 E. Indies, 20 cts. Frith, Sands & Co.
 " 25 Strawson & Co.
 " 1 Arbuthnot, Latham & Co.
 " 15 Ross & Deering
 " 59 R. von Glehn & Sons
 " 6 Eales & Rutherford
 " 19 L. & I. D. Jt. Co.
Myrabolams
 E. Indies, 2,000 pkgs. Marshall & French
 " 1,784 L. & I. D. Jt. Co.
 " 2,001 J. P. Alpe & Co.
 " 2,428 J. Graves
 " 867 Baxter & Hoare
 " 250 C. Wimble & Co.
 " 1,024 Anderson, Weber & Smith
Naphthalene
 Germany, 33 pkgs. Fleming's Oil Co.
Orchella
 Ceylon, 27 pkgs. Prop. Sun Wf.
 " 1 L. & I. D. Jt. Co.
Safflower
 E. Indies, 20 pkgs. Brown & Elmslie
Sumac
 Italy, 810 pkgs. Beresford & Co.
 " 100 Union L. Co. & Ld.
 " 150 Sollas & Sons
 " 325 J. Kitchen, Ltd.
 " 100 Skilbeck Bros.
 " 50 H. Johnson & Sons
 " 500 J. Graves
Tanners Bark
 Natal, 16 t. A. & W. Nesbitt
 " 1 T. Bates
 " 13 L. & I. D. Jt. Co.
 Adelaide, 1 Anderson, Weber & Smith
 " 24 Beresford & Co.
 Belgium, 4 G. R. Herron & Son
 " 55 Leach & Co.
Termeric
 E. Indies, 154 pkgs. L. & I. D. Jt. Co.
 " 72 Major & Field
 " 107 Hoare, Wilson & Co.
 Hong Kong, 200 W. M. Smith & Sons
 E. Indies, 250 Ralli Bros.
Farina
 Holland, 75 pkgs. J. Barber & Co.
 " 50 J. Knill & Co.
 " 25 T. H. Lee
 " 100 Ohlenschlager Bros.
Glucose
 U. States, 50 pkgs. 307 c. W. Isted
 " 25 138 Fellows,
 " 105 Morton & Co.
 Germany, 15 J. Knill & Co.

U. States, 200 200 L. & I. D. Jt. Co.
 " 250 250 Trim,
 " 50 500 Bags
 " 350 250 J. B.
 " 250 250 G. M.
 " 2,000 2,000 Lighterage,
 " 1,040 3,797 R. G.
 " 500 500 Quidan
 " 600 3,390
 " 50 775 T. M.
 " 50 775 Pilling
 " 50 775 C. S.
Guano—
 Germany, 755 t. Anglo-Cash
Iodine—
 Germany, 170 pkgs. A. Ubbelohde
Manganese—
 Japan, 30 t. L. & I. D. Jt. Co.
 " 75 Hoare, Wilson
Manure—
 Germany, 4 t. R. B. B.
 " 58 F. W. B.
 " 18 Williams, Torrey
 France, 200 Arnan & Co.
 Germany, 62 H. B. B.
Methyl Alcohol—
 U. States, 100 brls. R. B. B.
 Belgium, 8 dms. W. G. B.
Mica—
 U. States, 44 G. B. B.
 E. Indies, 2,710 W. M. Smith & Sons
 " 100 E. B. B.
Ochre—
 France, 25 cks. J. B. B.
 Holland, 40 cs. Phillips & Co.
 France, 40 cks. W. B. B.
 " 200 B. B. B.
Oxalic Acid—
 Norway, 19 pkgs. B. B. B.
Painters' Colours—
 Germany, 12 cks. 50 pkgs. B. B. B.
 " 5 27 B. B. B.
 " 20 cs. 10 T. B.
 Holland, 10 10 T. B.
 Belgium, 10 10 T. B.
 France, 10 10 T. B.

ay, 100 cks. W. Fenton
d, 1 J. Orr & Co.
2 pkgs. Bennett S. S.
Co., Ltd.
4 1 Hernu, Peron
& Co.
d, 14 Philipps & Graves
15, 7 1 ck. Magee,
Taylor & Co.
2 Glaeser & Vogeler
2 cs. Philipps & Graves
20 cks. Spies, Bros. & Co.
d, 4 G. Rahn & Co.
1 pkg. F. V. Smythe &
Co.
17, 39 H. Lambert
d, 19 A. O'Hara & Hoar
ies, 1 A. M. Zimmermann
es, 1 L. Achard & Co.
es, 2 R. Baelz & Co.
100 J. Melvin
d, 30 cks. Union Lightge Co.,
Ld.
12 W. Harrison & Co.

Wax—
es, 159 brls. Mordaunt Bros.
1,404 J. H. Usmar & Co.
405 Williams, Torrey &
Co.
326 H. Hill & Sons

ate Rock—
d, 200 t. Anglo-Contl Guano
Wks.
d, 140 J. Gibbs & Co.
195 Odams Chemical
Manure Co.
205 D. de Pass & Co.
230 A. Hunter & Co.
362 Miller & Johnson
d, 125 Lawes Manure Co.
50

ey, 20 bgs. N. S. S. Co.
go—
272 brls. R. G. Hall & Co.
368 80 cks. J. Thredder,
Son & Co.
67 Beresford & Co.
53 B. Gallaway
33 brls. L. & I. D. Jt. Co.
70 Doultan & Co.

100 c. Petri Bros.
60 pkgs. A. Krebs

um Carbonate—
ay, 200 c. Fellows, Morton &
Co.

um Sulphate—
re—
ay, 127 pkgs. Petri Bros.
116 cks. 80 kgs. P. Hecker
& Co.

ies, 607 bgs. Lucas & Spencer's
Wf.
660 Perkins & Homer
1,005 C. Wimble & Co.
2,719 Ralli Bros.
ay, 2 cks. Brown & Elmslie

ay, £200 A. Haacke & Co.

105 c. Prop. Hay's Wf.

e—
70 sks. J. Goddard & Co.
11 cks. 64 bgs. H. Hill &
Sons

357 " "
250 " "

5 t. G. Boor & Co.
200 W. C. Bacon & Co.
10 F. C. Devon & Co.
5 Grimwade, Ridley &
Co.
8 Sharland & Co.

£130 W. Johnston & Co.,
Ld.

aud, 12 cks. Culverwell,
Brooks & Co.
2 R. Brooks & Co.
3 N. M. & Co. of N. Z.
4 Philipps & Graves
6 Tegner, Price & Co.
and, 75 Low, Sons & Bedford
and, 184 N. Z. L. & M. A. Co.
ales, 110 L. & I. Dk. Co.
14 Goad, Rigg & Co.
100 Bk. of N. S. Wales
100 Pillow, Jones & Co.
140 bgs. Morrison, Pollexfen
& Co.

Sydney, 54 cks. Leach & Co.
59 Elkan & Co.
100 Hoare, Wilson & Co.
Melbourne, 28 Anning & Cobb
Queensland, 7 cks. J. Greig
" 35 Coml. Bkg. of Sydney
" 262 Goad, Rigg & Co.
" 119 A. B. Curtis & Co.
N. Zealand, 31 Beresford & Co.

Tartaric Acid—
Italy, 13 pkgs. Union L. Co.,
Ld.
Holland, 4 Domeier & Co.
" 10 F. C. Devon & Co.
" 30 Middleton & Co.
France, 3 B. & F. Wf. Co., Ltd.
R. Morrison & Co.

Turpentine—
France, 15 brls. T. Trapp & Sons
N. Russia, 52 Chiesman & Co.

Ultramarine—
Holland, 10 cs. Hernu, Peron & Co.
" 30 Thames S. T. & L. Co.,
Ld.
Belgium, 13 pkgs. W. Harrison &
Co.
" 1 cs. Weare, Clifford &
Co.
Germany, 25 pkgs. G. Steinhoff

Varnish—
France, 14 pkgs. Flageolet & Co.
Holland, 4 Philipps & Graves
Belgium, 10 Stobbs & Wilson

Verdigris—
Holland, 1 pkg. Beresford & Co.

White Lead—
Holland, 20 cks. Burrell & Co.
87 T. & W. Farniloe
Germany, 20 N. J. Fenner & Co.
" 13 P. Jantzen
" 27 Spies, Bros. & Co.
" 5 Steadman & Sons
Holland, 46 W. Balchin
Belgium, 24 Colthurst & Harding

Zinc Oxide—
Holland, 50 brls. M. Ashby, Ld.
U. States, 150 J. Matton
Holland, 25 cks.

Zinc Sulphate—
Germany, 10 pkgs. W. J. Crook

LIVERPOOL.

Week ending May 11th.

Acetate of Lime—
New York, 1729 bgs.

Acetic Acid—
Antwerp, 20 pkgs. J. T. Fletcher
& Co.

Alkali—
Antwerp, 1 cs.

Ammonium Acetate—
Flushing, 2 brls.

Bone Meal—
Bombay, 400 bgs. Forbes, Forbes
& Co.

Carbolic Acid—
Rouen, 2,768
68 tins. R. J. Francis &
Co.

Chemicals (otherwise undescribed)
Rotterdam, 2 cks.

Chloroform—
In transit, 1 cs. Cunard S. S. Co.
Ltd.

Colours—
Hamburg, 8 cks. 55 cs.
In transit, 75
Bremerhaven, 12 3
Rotterdam, 33 1
Antwerp, 4 10 J. T. Fletcher
& Co.

Flushing, 3 brls.
4 cks. 1

Cottonseed Oil—
New York, 120 brls.

Cream of Tartar—
Tarragona, 5 pps.
Barcelona, 5 cks. Sachse & Klein
Tarragona, 5 bts.
Rotterdam, 7 cks.

Dyestuffs—
Argols
Bordeaux, 90 cks.
Oporto, 23 German Bk. of Lon-
don

Constantinople, 112 bgs. G. & A. Cluamad

Divl Divl
Hamburg, 200 lbs.
Rotterdam, 602

Extracts
Fiume, 612 brls.
New York, 150 bxs.

Bordeaux, 50 cks.
Philadelphia, 200
Antwerp, 1

Fustic
Colon, 2,478 ps. A. Dobell & Co.
1,602 D. Midgeley & Son
1,100 lbs. G. H. Miller &
Co.

Savanna, 5 521 ps.

Gambier
Singapore, 6,364 bls.
Akassa, 603 bgs. Royal Niger
Co.

Singapore, 1,876 bls. E. Boustead &
Co.

3,934

Logwood
Belize, 407 t. 14 c. P. Leckie &
Co.

Madder
Flushing, 2 cks.

Myrabolams
Bombay, 603 bgs. Aldridge, Sal-
mon & Co.
" 3,508 D. Sasson & Co.
" 2,696 Ralli Bros.
" 4,090 1,493 pkgs.
960 A. Salmon & Co. Ld.

Saffron
Valencia, 2 cs.

Shumac
Bordeaux, 29 bls.

Turmeric
Bombay, 129 bgs. Aldridge, Sal-
mon & Co.
150 D. Sasson & Co.

Valonia
Syra, 1,168 bgs. C. Voctopulos
& Son

Farina—
Fiume, 50 bgs. C. T. Van der
Veen & Bros.

Hamburg, 330
100

Glucose—
New York, 340 brls. 200 pkgs.
Baltimore, 200
Flushing, 10 cks.

Lead Acetate—
Hamburg, 12 cks.

Limestone—
Havre, 1 crt. Cunard S. S.
Co. Ld.
Ronen, 1 R. J. Francis & Co.
Antwerp, 3 J. T. Fletcher & Co.
3

Manganese—
Yokohama, 1,716 bgs. 250 t.

Mineral White—
Trieste, 300 bgs. Schroder & Co.

Nickel Oxide—
New York, 70 cks.

Nitrate—
Rotterdam, 8 cks.

Paint—
Boston, 5 cs. Bahr, Behrend &
Ross

Marseilles, 22 4 cks.

Parraffin Scale—
Baltimore, 297 brls.

Phosphate—
Ghent, 500 bgs.

Phosphate Rock—
Savannah, 2,201 t.

Potashes—
Hamburg, 10 cks.
Portland, 35 brls.

Pumice Stone—
Messina, 83 bgs. 20 cs.

Pyrites—
Huelva, 3,459 t. A. Matheson &
Co.

Rosin—
Barbadoes, 5,235 brls.

Saltpetre—
In transit, 100 brls.

Silver Sulphur—
Colon, 11 c. Sanchez &
Gaffron

Soap—
New York, 8 cs. Humphreys &
Co.

Jaffa, 2
Bari, 120
Boston, 2 Evans, Sons & Co.
St. Nazaire, 12
New York, 68
Marse 150 bxs.

Sodium Nitrate—
Pisagna, 9,540 bgs. F. Huth & Co.

Stearine—
New York, 20 bds.
Antwerp, 51 bgs.

Tallow—
Zarate, 96 cks. J. Nelson &
Sons, Ld.

B. Ayres, 500
Boston, 554 103 pps.
28 bds. Stolterfoht,
Sons & Co.
Philadelphia, 200 brls.
New York, 20

Tartar—
Bari, 2 cks.
Bordeaux, 12

Tartar Emetic—
Hamburg, 10 cks.

Tartaric Acid—
Trieste, 3 cks. Hedley, Gamble
& Co.

Marseilles, 3
Rotterdam, 11

Turpentine—
Barbadoes, 600 brls.

Ultramarine—
Hamburg, 5 cs. 8 cks.
Rotterdam, 4 7 pkgs.

Varnish—
Flushing, 1 ck.

Verdigris—
Bordeaux, 2 cks.

Waste Salt—
Hamburg, 390 t. 3,399 bgs.

White Lead—
Flushing, 14 cks.

Zinc Oxide—
Hamburg, 25 cks.
Antwerp, 100 brls. J. T. Fletcher
& Co.

Zinc Skimmings—
Boston, 86 brls. Burgess & Co.
Baltimore, 53

HULL.

Week ending May 13rd.

Acetic Acid—
Rotterdam, 10 cbys. W. & C. L.
Ringrose

Alkali—
Flushing, 4 cks. Wilson, Sons,
& Co., Ld.

Alum—
Rotterdam, 41 cks. W. & C. L.
Ringrose

Asbestos—
Flushing, 4 bls. Wilson, Sons,
& Co., Ld.

Barytes—
Bremen, 22 cks. Veltmann & Co.
46 Tudor & Sons
Rotterdam, 78 Hutchinson &
Son

Antwerp, 21

Chemicals (otherwise undescribed)
Bremen, 3 pks. Veltmann & Co.
Hamburg, 8 cks. Wilson, Sons,
& Co., Ld.

Colours—
Stettin, 5 cks. Wilson, Sons,
& Co., Ld.

Flushing, 2 cs. 6 16 pks. Wilson,
Sons & Co., Ld.

Rotterdam, 1 2 85 W. & C. L.
Ringrose

" 13 G. Lawson &
Sons

" 1 Blundell, Spence,
& Co.

Amsterdam, 3 W. & C. L.
Ringrose

Bremen, 2 4 Veltmann & Co.
" 6 J. Pyefinch & Co.
" 2 J. & T. Seddon

Rotterdam, 2 7 brls. Hutchinson &
Son

Hamburg, 1 Wilson, Sons,
& Co., Ld.

" 10

Cream of Tartar — Rotterdam, 5 cks. W. & C. L. Ringrose	Sulphur — Catania, 1,486 pks. Wilson, Sons, & Co., Ltd.	Farina — Hamburg, 250 bgs.	Cryolite — Copenhagen, 3 cks. Wilson, Sons, & Co., Ltd.
Dyestuffs — Alizarine Rouen, 22 cks. Rawson & Robinson	Tartaric Acid — Rotterdam, 6 cks. W. & C. L. Ringrose	Glucose — New York, 1,150 brls.	Limestone — Antwerp, 3 cts. Tyne
Rotterdam, 80 pks. W. & C. L. Ringrose	" 2 Woodhouse & Co.	Nitrate of Lead — Hamburg, 5 kgs.	Paint — Hamburg, 4 dms. Tyne
" 13 cks. Hutchinson & Son	" 8 G. Lawson & Sons	Paint — Hamburg, 13 cks.	Plumbago — Antwerp, 20 bgs. Tyne
Fustic Hamburg, 230 bgs. Wilson, Sons, & Co., Ltd.	Turpentine — Libau, 50 cks.	Painters' Colours — Antwerp, 1 ck.	Salt — Hamburg, 200 l. 18 c.
Sumac Palermo, 425 bgs. Wilson, Sons, & Co., Ltd.	Waste Salt — Hamburg, 600 pkgs.	Pitch — In transit, 10 brls.	Saltpetre — Hamburg, 6 cks. Tyne
" 800	White Lead — Rotterdam, 21 cks. W. & C. L. Ringrose	Pyrites — Huelva, 1,727 Tharsis Co., Ltd.	Saltpetre Salt — Hamburg, 250 l. Clephane & Co.
Farina — Stettin, 1,380 bgs. Wilson, Sons, & Co., Ltd.	" 5 J. T. Seddon	Rosin — New York, 1,952 brls.	Stearine — Antwerp, 6 bgs. Tyne
Harlingen, 1,610	" 25 A. Sanderson & Co.	In transit, 5	Ultramarine — Hamburg, 4 cks. Tyne
Hamburg, 50	" 10 Gibson Bros.	Saltpetre — Calcutta, 1 pkg.	
Glucose — Stettin, 25 cks. 500 bgs.	" 41 Hutchinson & Son	Hamburg, 60 20 kgs. 20 cks.	GOOLE.
Limestone — Antwerp, 2 pks. Wilson, Sons, & Co., Ltd.	Zinc Oxide — Rotterdam, 20 cks. W. & C. L. Ringrose	Soap — New York, 5 cs.	<i>Week ending May 18th.</i>
Naphtha — Hamburg, 3 cs. Wilson, Sons, & Co., Ltd.	" 25 10 brls. Hutchinson & Son	Tallow — New York, 110 hhds. 120 tcs.	Alum — Rotterdam, 140 cks.
Ochre — Rouen, 81 cks. Rawson & Robinson	GLASGOW.	Tar — New York, 450 brls.	Anthr. oil — Boulogne, 30 cks.
Pumice Stone — Messina, 10 brls. Wilson, Sons, & Co., Ltd.	<i>Week ending May 18th.</i>	Varnish — New York, 10 brls.	Antimony — Boulogne, 1 ck.
Salt — Copenhagen, 100 bgs. Wilson, Sons, & Co., Ltd.	Acetate of Lime — New York, 802 bgs.	Waste Salt — Hamburg, 50 t. 215 cks.	Caoutchouc — Boulogne, 13 cks.
Bremen, 1 brl.	Alum — Hamburg, 123 cks.	White Lead — Rotterdam, 45 cks. J. Rankine & Son	Dyestuffs (otherwise undescr.) Boulogne, 13 cks. 15 pkgs.
Saltpetre — Hamburg, 1 ck. Wilson, Sons, & Co., Ltd.	Aniline Colours — Rotterdam, 13 cs. 2 cks. J. Rankine & Son	Ghent, 11	Potash — Calais, 49 dms.
Size — Hamburg, 10 cks.	Barytes — Rotterdam, 50 cks. J. Rankine & Son	Zinc Ashes — Antwerp, 3 cks.	Dunkirk, 60
Soap — Bari, 80 cs. Wilson, Sons, & Co., Ltd.	Bone Meal — Hamburg, 224 bgs.	Zinc Oxide — New York, 100 brls.	Pyrites — Huelva, 1,346 t.
Messina, 1	Castor Oil — Antwerp, 84 cks.	Antwerp, 93 cks.	Saltpetre — Hamburg, 1 ck.
Sodium Nitrate — Hamburg, 80 bgs. Wilson, Sons, & Co., Ltd.	Chemicals (otherwise undescr.) Hamburg, 1 cs.	Rotterdam, 10 J. Rankine & Son	Hamburg, 200 bgs.
Stearine — Bergen, 54 brls.	Colours — Hamburg, 2 cs. 13 cks.	Zinc White — Rotterdam, 550 cks. J. Rankine & Son	Waste Salt — Hamburg, 574 l. 110 dms.
	Dyestuffs — Alizarine Rotterdam, 4 cks. 2 cs. J. Rankine & Son		
	Extracts Antwerp, 7 cks.	TYNE.	GRIMSBY.
		<i>Week ending May 13th.</i>	<i>Week ending May 13th.</i>
		Alum Earth — Hamburg, 36 cks. Tyne S. S. Co.	Caoutchouc — Rotterdam, 1 cs.
		Barytes — Antwerp, 25 bgs. Tyne S. S. Co.	Hamburg, 1 2 bgs.
		Bone Meal — Hamburg, 1,120 bgs. Tyne S. S. Co.	Chemicals (otherwise undescr.) Hamburg, 23 pkgs.
		Colours — Antwerp, 3 brls. Tyne S. S. Co.	Antwerp, 15 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending May 17th.</i>	Ammonium Sulphate — Barbadoes, 100 l. 1 c. £1,303 Martinique, 85 1,078 Demerara, 109 1,253 Rouen, 20 260 Valencia, 204 19 2,600 Hamburg, 250 2,800	Durban, 3 10 E. London, 21 20	Citric Acid — Amsterdam, 5 kgs. Albany, 2 1/2 Brussels, 10 Hamburg, 22 St. Petersburg, 1 t. 13 1/2 Montreal, 11 Barcelona, 1
Acids — Singapore, 20 cs. £15 E. London, 11 25	Arsenic — Amsterdam, 11 cks. £30 Melbourne, 5 t. 78	Carbon Bisulphide — Sydney, 50 drs. £26 M. Video, 1 t. 14	Coal Products — Aniline Lisbon, 1 1/2 Port Alegre, 1 cs. Boulogne, 1 ck.
Alum — Rabat, 4 t. 17 c. £29	Bisulphite of Lime — Ghent, 2 t. 9 c. £206	Caustic Soda — Hong Kong, 15 c. £17 Natal, 1 t. 4 28 Algoa Bay, 8 15 Durban, 7 9 E. London, 6 11	Aniline Oil Dunkirk, 2 1/2 Anthracene Rotterdam, 61 cks.
Ammonia — Melbourne, 1 t. £37	Borax — Algoa Bay, 1 t. £31 Melbourne, 1 13 c. 47 Sydney, 2 61 Copenhagen, 10 34	Chemicals (otherwise undescr.) Bombay, 16 c. £53 Melbourne, 1 24 Shanghai, 9 cs. 56 Adelaide, 20 4 cks. 54 Durban, 10 drs. 9 Toronto, 10 50 Fremantle, 3 4 brls. 18	Benzol Boulogne, 165 cks. Rotterdam, 40 35 dms. Coal Tar Dyes Boston, 27 pkgs. Naphthalene Marseilles, 45 cks.
Ammonium Carbonate — Melbourne, 5 c. £6 Hamburg, 20 pkgs. 34 M. Video, 10 28 Paris, 2 t. 18 75 Adelaide, 5 11 Odessa, 4 112 St. Petersburg, 18 703	Carbolic Acid — Algoa Bay, 5 cs. £56 Rotterdam, 48 cks. 393	Chloride of Lime — Algoa Bay, 10 cs. £13	
Ammonium Chloride — Antwerp, 2 t. £66 Paris, 6 9 c. 213 Varna, 10 16			

Pitch		
Marlax, 10 t.	£17	
Cette, 900	1,125	
Drankirk, 438	609	
Galatz, 50 brls.	15	
Philadelphia, 500 cks.	139	
Ancona, 2,015 t.	3,020	
Tar		
Melbourne, 83 pkgs	£19	
Newcastle, 100 drs.	24	
Toluol		
Rotterdam, 15 pns. 25 cks	£100	
Copperas—		
Cologne, 7 c.	£11	
Copper Sulphate—		
Odessa, 10 t. 4 c.	£153	
Batoum, 10 1	155	
Boulogne, 10	180	
Malta, 2 4	36	
E. London, 5	6	
Stettin, 10	160	
Venice, 25	400	
Corrosive Sublimate—		
Odessa, 10 cs.	£212	
Cream of Tartar—		
Sydney, 1 t. 11 c.	£120	
Fremantle, 5	20	
Adelaide, 10	42	
Disinfectants—		
Sydney, 16 cs.	£51	
Melbourne, 613 pkgs.	406	
Treport, 26	39	
Flowers of Sulphur—		
Cape Town, 16 c.	£10	
Manure—		
Grienssey, 1 t.	£69	
Montreal, 3 1 c.	100	
Treport, 5	30	
Oxalic Acid—		
St. Petersburg, 85 t. 3 c.	£630	
Phosphoric Acid—		
New York, 90 pkgs.	£470	
Potash Crystals—		
Brussels, 11 c.	£78	
Potassium Chlorate—		
Constantia, 1 cs.	£10	
Calcutta, 10 c.	35	
Santos, 2	12	
Prussic Acid—		
Calcutta, 1 cs.	£10	
Saltcake—		
Antwerp, 135 t.	£234	
Saltpetre—		
Sydney, 1 t.	£23	
Bilibao, 2 10 c.	94	
Corunna, 2	251	
Santos, 11 3	6	
E. London, 5	110	
Rio, 4 13	218	
Bahia, 9 11		
Sheep Dip—		
Natal, 35 drs.	£12	
Albany, 25 cs.	75	
Soda—		
Adelaide, 2 t.	£13	
St. Kitts, 2 2 c.	7	
Soda Crystals—		
Hong Kong, 18 c.	£3	
Calcutta, 1 t. 3	0	
E. London, 10	3	
Cape Town, 18	4	
Soda Salts—		
Toronto, 11 c.	£10	
Sodium Bicarbonate—		
Natal, 1 t. 11 c.	£15	
Sydney, 1 2	23	
Sodium Tartrate—		
Montreal, 17 c.	£32	
Strontium Nitrate—		
New York, 3 t. 10 c.	£90	
Sulphate of Lime—		
Cape Town, 1 t. 10 c.	£36	
Sulphur—		
Cape Town, 300 pkgs.	£232	
Sulphuric Acid—		
Colombo, 17 c.	£10	
Algoa Bay, 104 drs.	52	

Tartaric Acid—		
Copenhagen, 3 c.	£16	
Albany, 2	8	
Sydney, 5	28	

LIVERPOOL.

Period ending May 17th.

Acids—		
Halifax, 1 cs.	£5	
Alkali—		
M. Video, 1 t. 11 c. 1 q.	£10	
Alum—		
Singapore, 2 t. 4 c. 1 q.	£14	
Cape Town, 7 1	39	
Bari, 2 2	10	
Penang, 1 5	9	
Lisbon, 10 17 3	56	
Ibrail, 1 2	7	
Montreal, 10 3 3	48	
B. Ayres, 13	78	
Alexandria, 14 18	90	
Sydney, 2	12	
Montreal, 22 12	108	
Alum Cake—		
Calcutta, 5 t. 1 c.	£15	
Alumina Sulphate—		
Boston, 1 t. 5 c. 2 q.	£55	
Aluminous Cake—		
Calcutta, 10 t. 4 c.	£45	
Ammonium Carbonate—		
Genoa, 1 t. 6 c. 1 q.	£39	
Philadelphia, 4	6	
Bordeaux, 10	14	
Marseilles, 15	22	
Seville, 12 2	17	
Copenhagen, 2 4	56	
Barcelona, 2 6 3	65	
Ammonium Chloride—		
Leghorn, 12 c.	£20	
Jeddah, 2 t. 3 q.	64	
Catania, 6	10	
Lisbon, 11	19	
Vigo, 4 1	7	
Seville, 10 3	17	
Mersyne, 4	7	
Fiume, 1 1	37	
Pireus, 2 5 2	9	
Antwerp, 2 5	47	
Marseilles, 15	25	
Bombay, 4 4 1	130	
Hiogo, 2 10	83	
Yokohama, 1 16	58	
Barcelona, 2 10 2	79	
Ammonium Citrate—		
Genoa, 10 c.	£14	
Ammonium Sulphate—		
Barbadoes, 121 t. 16 c. 1 q.	£1,306	
St. Petersburg, 204	3 2 550	
Gr. Canary, 24 18	350	
Valencia, 182 10	2,157	
Ammonium Vanadate—		
New York, 1 q.	£19	
Asbestos—		
B. Ayres, 5 cs.		
Barium Chlorate—		
Vigo, 3 c.	£14	
Bleaching Powder—		
Antwerp, 30 cks.		
Calcutta, 146 cs.		
Callao, 7 6		
Genoa, 144	60 bxs.	
Montreal, 18	20 kgs.	
Naples, 16		
New York, 160 827		
Oporto, 10		
Rouen, 46		
Venice, 32		
Baltimore, 103		
Boston, 812		
Hamburg, 75		
Norroping, 273		
Philadelphia, 40	167 brls.	
Pireus, 5		
Santander, 5	14	
Vigo, 6	7	
Boracic Acid—		
Yokohama, 1 t. 2 c.	£15	
Hayre, 5 2 3 q.	155	
Havana, 9 2	17	
Borate of Lime—		
Antwerp, 6 t. 13 c.	£66	

Borax—		
Havana, 10 c. 1 q.	£18	
New York, 5 cs.	16	
Vigo, 11	15	
Malaga, 4 2	6	
London, Ont., 7	9	
Ibrail, 1 t. 17	49	
Antwerp, 7 5	220	
Rotterdam, 6 2	10	
Montreal, 2 10	66	
Hamburg, 3 5 1	98	
Borax Crystals—		
Malaga, 1 t. 6 c.	£33	
Calcined Magnesia—		
Constantinople, 1 cs.		
Genoa, 2		
Calcium Chloride—		
B. Ayres, 3 t. 5 c.	£83	
New York, 30 10	70	
Carbolic Acid—		
Baltimore, 14 cs.	£72	
Canada, 12 c. 1 q.	36	
Rouen, 2 t. 16	176	
Hamburg, 17 8 2	515	
New York, 14 11 2	718	
St. Petersburg, 9 9 1	190	
Rotterdam, 14 7 3	844	
Caustic Soda—		
Amsterdam, 90 dms.		
Bari, 145		
Bombay, 13		
Brussels, 5 brls.		
Coquimbo, 12		
Fiume, 70		
Genoa, 34		
Hamburg, 385 5		
Hong Kong, 1 tce.		
Malaga, 280		
Manzanilla, 205 10		
Montreal, 182		
Oporto, 165 7		
Rouen, 6		
St. Johns, Nfld., 6 pkgs.		
Sydney, 60		
Toronto, 35		
Acajutla, 50		
Alicante, 115		
Almeria, 10		
Baltimore, 200 135		
Barcelona, 50 50		
Boston, 125		
Galatz, 43		
Hiogo, 100		
Ibrail, 35		
Lisbon, 68		
Mauritius, 10		
New York, 509		
Philadelphia, 25		
Rangoon, 18		
San Sebastian, 30		
Shanghai, 2 cks.		
Tarragona, 30		
Valencia, 100		
Yokohama, 300		
Chemicals (otherwise undescribed)		
Alexandria, 4 t.	£132	
Beyrout, 10 c.	16	
Antwerp, 10	17	
Ibrail, 6 2 q.	11	
Philadelphia, 26	590	
Smyrna, 1 6	43	
Rotterdam, 1	35	
Montreal, 2 3	60	
China Clay—		
Bombay, 18 t. 17 c.		
Boston, 885		
Hamburg, 61 11		
Philadelphia, 25		
Rio de Janeiro, 20		
Lisbon, 8 cks.		
Chloroform—		
Montreal, 1 cs.		
Citric Acid—		
Halifax, 2 c.	£17	
Acajutla, 1	8	
Mexico City, 1	8	
Montreal, 2 kgs.	10	
Coal Products—		
Anilina, 2 dms.		
Vera Cruz, 2 dms.		
Aniline Colours		
Santos, 1 cs.		
Shanghai, 30		
Aniline Oil		
Genoa, 4 dms.		

Pitch		
Galatz, 115 brls.		
Tar		
Galatz, 110 brls.		
Philadelphia, 23 t. 5 c.		
Genoa, 1 ck.		
Leghorn, 1		
Santander, 3		
Tar Oil		
Las Palmas, 50		
Cobalt Oxide—		
Gijon, 1 c.	£33	
Copperas—		
Quebec, 2 t. 19 c.	£5	
Tripoli, 4 7	8	
Beyrout, 4 8	8	
Calcutta, 151 brls.	41	
Pireus, 6 18	14	
San Francisco, 33 6	60	
Copper Sulphate—		
Marseilles, 255 t. 12 c. 2 q.	£4,241	
Galatz, 8	66	
Ghent, 7 10	115	
Patras, 1 19 2	31	
Pireus, 5	4	
Oporto, 4 18	81	
Vigo, 2 4 3	36	
Hamburg, 20 1 1	391	
Sydney, 1 1 2	16	
Halifax, 1 5	19	
Lisbon, 20 13 2	329	
Nantes, 13 3	200	
B. Ayres, 2 10	33	
Valparaiso, 7 10	123	
Trieste, 3 4	50	
Venice, 89 16 1	1,406	
Bordeaux, 385 13 2	6,211	
Bilibao, 1 12 3	26	
Fiume, 12 6 1	184	
Disinfectants—		
Kurrachee, 5 t.	£30	
Calcutta, 9 c. 1 q.	15	
Montreal, 2 1	75	
Dried Blood—		
Gr. Canary, 4 t.	£28	
Farina—		
Bombay, 10 bgs		
Guano—		
Valencia, 60 t.	£129	
Cullera, 507	3,424	
Gypsum—		
New York, 64 t. 11 c.	£216	
Iron Sulphate—		
Galatz, 5 t.	£13	
Magnesia—		
Mexico, 12 cs.		
Vera Cruz, 6		
Magnesium Carbonate—		
Vigo, 4 c.	£5	
Magnesium Sulphate—		
Bombay, 134 cks. 25 sks.		
New York, 10		
Manganese Borate—		
St. Petersburg, 2 c.	£6	
Manganese Oxide—		
Porto Alegre, 16 c.	£8	
Manure—		
Valencia, 50 t. 9 c. 2 q.	£114	
Metallic Sodium—		
Rotterdam, 6 t. 18 c.	£1,300	
Ochre—		
Calcutta, 5 cks.		
Paint—		
Antwerp, 12 kgs.		
Benguella, 40	94 pkgs.	
B. Ayres, 150 dms. 1 butt.		
Callao, 2		
Caracas, 90		
Gaboon, 9		
Gibraltar, 40		
Guatemala, 8 cks.		
Ibrail, 4		
Lagos, 7		
Loanda, 9		
Manaos, 100		
Montreal, 1 cs.		
New York, 3 4 pkgs		
Old Calabar, 20 5 6 dms.		
Odessa, 56		

Week ending May 13th

Cottonseed Oil—

Antwerp,	439 c.
Bremen,	271
Bordeaux,	375
Fiume,	100
Flushing,	100
Gothenburg,	130
Rotterdam,	2,174
Stettin,	120
Trieste,	1,001

Crocoete—

Christiania,	50 cks.
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Linseed Oil—

Bremen,	219 c.
Bordeaux,	21
Christiania,	481
Drontheim,	154
Rotterdam,	52
Trieste,	148

Mineral White—

Antwerp,	3 cks.
Gothenburg,	20 bgs.

Ochre—

Dunkirk,	13 cks.
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Painters' Colours—

Antwerp,	41 cks.	4 cs. 13 pks.
Amsterdam,	2	48
Bremen,	2	
Christiania,	15	93 dms.
Flushing,	1	
Gothenburg,	2	
Rotterdam,	55	2
Stettin,	39	2
Trieste,	8	

Pitch—

Antwerp,	5 t.
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Size—

Christiania,	1 ck.
Flushing,	10

Soap—

Christiania,	26 cs.
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Sulphur—

Bremen,	7 cks.
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Tallow—

Flushing,	24 cks.
Gothenburg,	35

Tar—

Antwerp,	5 cks.
Amsterdam,	60
Christiania,	11
Fiume,	12
Flushing,	5
Rotterdam,	53
Stettin,	2

Yarnish—

Antwerp,	1 ck.	1 cs.	2 dms.
Christiania,			
Dunkirk,	2		
Gothenburg,		7	
Rouen,		3	

GLASGOW.

Week ending May 18th.

Alkali—

Hamburg,	3 t. 2 c.	£107
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Ammonium Chloride—

Gothenburg,	1 t. 1½ c.	£22
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Bleaching Powder—

Sydney,	5 t. 2½ c.	£42
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Boracic Acid—

Japan,	2 t. 5 c.	£74
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Borax—

Japan,	3 t. 8 c.	£88
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Chemicals (otherwise undescribed)

Bombay,		£24
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Chloroform—

Newfairwater,	1 cs.	£13
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Coal Products—

Benzol		
Hamburg,	16 dms.	£155
Crocoete		
Odessa,	103 t. 18 c.	£288
Crocoete Oil		
Christiania,	25 brls.	£121. 108.
Naphtha		
Rouen,	19 t. 4 c.	£220

Pitch

Odessa,	127 t. 8 c.	£179
Bombay,		105
Gothenburg,	75	200
Madras,		25
Quebec,	30 12	40
New York,	16 7	25

Tar

Odessa,	178 t. 18 c.	£250
Bombay,		135
Christiania,	55 brls	23
Newfairwater	1,050	350
St. Petersburg,	750	

Tar Oil

Rouen,	11 t. 13 c.	£186
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Colours—

Quebec,	4 t. 2½ c.	£230
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Cottonseed Oil—

Hamburg,	30 brls.	£34
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Dyestuffs—

Fustic Extract		
Quebec,	2 t. 7½ c.	£94
Logwood		
Sydney,	5 t. 6 c.	£53
Quebec,	8 4	76
Logwood Extract		
Quebec,		£118

Farina—

Venice,	6 t.	£75
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Glucose—

Cape Colony,	12 t. 6½ c.	£300
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Lead Acetate—

Quebec,	1 t. 6 c.	£30
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Linseed Oil—

Bombay,	1 t. ½ c.	£27
Sydney,	3 16	96
Singapore,	2 10	07
Quebec,	8 12½	176
Cape Colony,		71
Mauritius,	2 10½	02

Magnesium Sulphate—

Bombay,	11 t. 2½ c	£43
Christiania,	5	15

Manganese—

Hamburg,	3 t. 6 c.	£31
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Nitrate of Lead—

Quebec,	5 t. 7½ c.	£92
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Paint—

Singapore,	2 t. 7½ c.	£52
Cape Colony,	2 18	62
Mauritius,	7 8	77

Painters' Colours—

Malta,		£45 195.
Bombay,		150
Madras,		35
Calcutta,		29 105.

Paraffin Wax

Hong Kong,	4 t. 3 c.	£112
Venice,	1	22
Hungary,	30 10½	857
Hamburg,	3 6	74
Nantes,	5 9½	130
Sydney,	10 1½	223

Potassium Bichromate—

Japan,	6 t. ¾ c.	£240
Venice,	3 3	123
Bombay,	2 12½	98
Rouen,	4 19½	192
Gothenburg,	6 1½	220
Rotterdam,		59 cks. 740
Amsterdam,		37 390
Quebec,	11 9½	454
New York,	33 3½	1,239
Sydney,	8	£21. 115.
Japan,	5 5½	£209

Potassium Nitrate—

Quebec,	1 t. 1½ c.	£21
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Potassium Prussiate—

New York,	9 t. ¾ c.	£820
Quebec,	11	40

Rosin—

Bombay,	15 t. 3¼ c.	£69
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Soap—

Hamburg,	1 q.	£1
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Soda Ash—

New York,	9 t. 14 c.	£38
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Sodium Bichromate—

Bombay,	2 t. 13¼ c.	£81
Rouen,	15 14	510
Antwerp,	24 19½	860
New York,	25 17½	785
Quebec,	11 3¼	371

Sodium Bisulphate—

Quebec,	5 t. 5 c.	£84
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Sulphuric Acid—

Madras,	8 t. 15 c.	£100
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White Lead—

Sydney,	18 t. 12½ c.	£384
Shanghai,	2 1½	44
Cape Colony,	2 9½	49

TYNE.

Week ending May 13th

Alkali—

Antwerp,	3 t. 6 c.	
Amsterdam,	36 19	
Hamburg,	5 11	
St. Petersburg,	60 17	
Gothenburg,	5 5	

Alum—

Rotterdam,	10 t. 2 c.	
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Ammonia—

Barcelona,	11 c.	
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Ammonia Alkali—

Odense,	5 t.	
Aalborg,	5	
Barcelona,	14 9 c.	

Antimony—

Montreal,	9 t	
Antwerp,	10 c.	
Hamburg,	2 10	
Rotterdam,	5	

Arsenic—

Barcelona,	2 t. 10 c.	
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Barium Chloride—

Montreal,	20 t. 3 c.	
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Barytes—

Hamburg,	97 t. 12 c.	
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Blanc Fixe—

Montreal,	3 t. 5 c.	
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Bleaching Powder—

Oporto,	4 t. 1 c.	
Montreal,	128 6	
Antwerp,	35 8	
Amsterdam,	14	
Hamburg,	11	
Christiania,	9 10	
Aalborg,	3 11	
Horsens,	2 19	
Narva,	29 19	
Copenhagen,	45 9	
Rotterdam,	35 17	
St. Petersburg,	228 2	
Bilbao,	5 3	
Gothenburg,	22 11	
Drontheim,	9 19	

Caustic Soda—

Montreal,	61 t. 10 c.	
Antwerp,	4 18	
Amsterdam,	9 17	
Hamburg,	5 18	
Christiania,	5	
Copenhagen,	11 19	
Rotterdam,	3 10	
St. Petersburg,	166 4	
Barcelona,	1 15	
Gothenburg,	5	

Copperas—

Aalesund,	10 c.	
Randers,	1 t. 3	

Litharge—

Montreal,	26 t. 17 c.	
Amsterdam,	1 5	
Hamburg,	2 1	
Copenhagen,	1 17	
Gothenburg,	1 8	

Magnesia—

Montreal,	7 c.	
Hamburg,	1 t. 4	
Barcelona,	11 19	

Paint—

Hamburg,	1 t. 1 c.	
Christiania,	1 7	
Rotterdam,	1 10	
Bergen,	1 10	

Painters' Colours—

Christiania,	11 c.	
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Potassium Chlorate—

Amsterdam,	10 c.	
Copenhagen,	10	

Soda—

Oporto,	17 t. 16 c.	
Aalesund,	1 3	
Montreal,	274 14	
Christiania,	10 1	
Laurvig,	5 6	
Odense,	12 6	
Randers,	187 19	
Svendborg,	29 19	
Narva,	65 4	
Bergen,	5 18	
Rotterdam,	18 6	
Gothenburg,	15 4	
Drontheim,	5 3	

Soda Ash—

Oporto,	13 t.	
Antwerp,	9 17 c.	
Hamburg,	9 18	
Copenhagen,	2 13	
Gothenburg,	50	

Sodium Bicarbonate—

Odense,	9 c.	
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Sodium Hyposulphite—

Montreal,	5 t.	
Barcelona,	3 6 c.	

Sulphur—

Antwerp,	5 t.	
Hamburg,	10	
Christiania,	50	

Tallow—

Hamburg,	1 t. 6 c.	
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Yarnish—

Aalesund,	13 c.	
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White Lead—

Montreal,	103 t. 9 c.	
Christiania,	1 7	
Narva,	10	
Copenhagen,	6 1	

GOOLE.

Week ending May 10th.

Alum—

Christiania,	425 t.	
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Benzol—

Antwerp,	290 cks.	
Ghent,	6 dms.	

Coal Products (otherwise undescribed)

Antwerp,	36 cks.	
Ghent,	5 dms.	
Hamburg,	1 cs.	
Rotterdam,	59 cks.	

Dyestuffs (otherwise undescribed)

Boulogne,	3 cs. 2 cks. 10 dms. 13 pks.	
Ghent,	4 4	
Hamburg,	2	
Rotterdam,	47	

Logwood—

Rotterdam,	
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PRICES CURRENT.

WEDNESDAY, MAY 2

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities

Acids:—		£ s. d.			
Acetic, 25 % and 40 %	per cwt	7/-	10/6	Lime, Acetate (brown)	per ton
" Glacial..	"		50/-	" (grey)	"
Arsenic S.G., 2000°	"	0	14 6	Magnesium (ribbon and wire)	per oz.
Fluoric	per lb.	0	0 3¼	" Chloride (ex ship)	per ton
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10	" Carbonate	per cwt.
" (Cylinder), 30° Tw.	"	0	3 0	" Hydrate	per ton.
Nitric 80° Tw.	per lb.	0	0 1¼	" Sulphate (Epsom Salts)	per ton
Nitrous	"	0	0 1¼	Manganese, Sulphate	"
Oxalic	nett	0	0 3	" Borate	per cwt.
Phosphoric, 1750°	"	0	1 2½	" Ore, 70 %	per ton
Picric	"	0	1 0	Methylated Spirit, 61° O.P.	per gallon
Sulphuric (fuming 50 %)	per ton	15	10 0	Naphtha (Wood), Solvent	"
" (monohydrate)	"	5	10 0	" Miscible, 60° O.P.	"
" (Pyrites, 168°)	"	3	0 0	Oils:—	
" 150°	"	1	5 0	Cotton-seed..	per ton
" (free from arsenic, 145°)	"	1	6 0	Linseed	"
Sulphurous (solution) S.G. 1025	"	3	0 0	Lubricating, Scotch, 890°—895°	"
Tannic (pure)	per lb.	0	1 2	Petroleum, Russian	per gallon
Tartaric	"	0	0 11¼	" American..	"
Arsenic, white powdered	nett	per ton	14 0 0	Potassium (metal)	per oz.
Alum (loose lump)	"	5	2 6	" Bichromate	per lb.
Alumina Sulphate (pure)	"	5	0 0	" Carbonate, 90% (ex ship)	per ton
Aluminoferic	"	2	10 0	" Chlorate	per lb.
Aluminium	per lb.	0	4 0	" Cyanide, 98%	"
Ammonia, Anhydrous	"	0	1 1	" Hydrate (Caustic Potash) 80/85 %	per ton
" 880=28°	per lb.	0	0 2½	" (Caustic Potash) 75/80 %	"
" =24°	"	0	0 1¼	" (Caustic Potash) 70/75 %	"
" Carbonate	nett	0	0 3¼	" Nitrate (refined)	per cwt.
" Muriate..	per ton	20	0 0	" Permanganate	per cwt.
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-		" Prussiate Yellow	per lb.
" Nitrate	per ton	39	0 0	" Sulphate, 90 % (ex ship)	per ton
" Pho-phate	per lb.	0	0 10½	" Muriate, 80 % (do.)	"
" Sulphate (grey) London	per ton	12	0 0	Silver (metal)	per oz.
" (grey) Hull	"	11	15 0	" Nitrate	"
Aniline Oil (pure)	per lb.	0	0 6¾	Sodium (metal)	per lb.
Aniline Salt	"	0	0 6¼	" Carb. (refined Soda-ash) 48 %	nett per ton
Antimony	per ton	45	10 0	" (Caustic Soda-ash) 48 %	"
" (tartar emetic)	per lb.	0	1 0	" (Carb. Soda-ash) 48 %	"
" (golden sulphide)..	"	0	0 10	" (Carb. Soda-ash) 58 %	"
Barium Chloride	per ton	7	10 0	" (Soda Crystals)	"
" Carbonate (native)	"	3	10 0	Acetate (ex-ship)	"
" Sulphate (native levigated)	"	45/- to 75/-		" Arseniate, 45 %	"
Bleaching Powder, 35 %	nett	8	0 0	" Chlorate	per lb.
" Liquor, 7 %	"	3	10 0	" Borate (Borax)	nett, per ton
Bisulphide of Carbon	"	11	15 0	" Bichromate..	per lb.
Chromium Acetate (crystal)	per lb.	0	0 6	" Hydrate (77 % Caustic Soda) (f.o.b.)	nett pr. ton
Calcium Chloride	per ton	2	5 0	" (74 % Caustic Soda)	"
China Clay (at Runcorn) in bulk	"	17/6 to 35/-		" (70 % Caustic Soda)	"
Coal Tar Products and Dyes:—				" (60 % Caustic Soda)	"
Alizarine (artificial) 20 %	net per lb.	0	0 8	" (60 % Caustic Soda, cream) (f.o.b.)	"
Magenta	"	0	3 9	Bicarbonate	"
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 2	Hyposulphite	"
Benzol, 90 % nominal	per gallon	0	1 5	" Manganate, 30%	"
" 50/90	"	0	1 4	" Nitrate (95 % ex-ship Liverpool)	per cwt.
Carbolic Acid (crystallised 40°)	per lb.	0	0 7¼	" Nitrite, 98 %	per ton
" (crude 60°)	per gallon	0	2 5	" Phosphate	"
Cresosote (ordinary)..	"	0	1	" Prussiate	per lb.
" (filtered for Lucigen light)	"	0	0 1¼	" Silicate (glass)	per ton
Crude Naphtha 30 % @ 120° C.	"	0	0 7½	" (liquid, 100° Tw.)	"
Grease Oils, 22° Tw.	per ton	2	5 0	" Stannate, 40 %	per cwt.
Pitch, f.o.b. Liverpool or Garston..	"	1	5 0	" Sulphate (Salt-cake)	per ton.
Solvent Naphtha, 90 % at 160°	per gallon	0	0 10	" (Glauber's Salts)	"
" Lucigen" and " Wells Oils	"	0	0 1¼	" Sulphide	"
Copper	per ton	43	15 0	" Sulphite	"
" Sulphate	"	16	10 0	Strontium Hydrate, 100%	"
" Oxide (copper scales)	"	42	0 0	Sulphocyanide Ammonium, 95 %	per lb.
Glycerine (crude)	"	13	0 0	" Barium, 95 %	"
" (distilled S.G. 1250°)	"	43	0 0	" Potassium	"
Iodine	nett, per oz.	0	0 9	Sulphur (Flowers)	per ton.
Iron Sulphate (copperas)	per ton	1	12 6	" (Roll Brimstone)	"
" Sulphide (antimony slag)	"	2	0 0	" Brimstone: Best Quality	"
Lead (sheet) for cash	"	11	0 0	Superphosphate of Lime (26 %)	"
" Litharge Flake (ex ship)	"	13	0 0	Tallow	"
" Acetate (white)	"	25	15 0	Tin (English Ingots)	"
" brown)	"	17	10 0	" Crystals	per lb.
" Carbonat: (white lead) pure	"	20	0 0	Zinc (Spelter)	per ton
" Nitrate	"	20	0 0	" Chloride (solution. 96° Tw.)	"

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Articles, reports, and correspondence on all matters of interest to the Chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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WHAT IS ADULTERATION?

DESPITE the fault which is found with the present Sale of Food and Drugs Act, and undoubtedly it might be greatly improved, there seem to have been a goodly number of successful prosecutions lately, that is to say, successful in that they have led to certain well-known doubtful procedures being discussed and ventilated, though the prosecutions may not have resulted in a final settlement of the questions.

The most interesting point which has arisen out of a case at Birmingham is the question of what is vinegar and what is not. Seemingly chemical evidence can be shown supporting the argument that real vinegar is a product obtained from malted grain, and likewise refuting such a supposition. We were certainly under the impression that a real vinegar was a product of fermentation, there being of course many vinegars, common vinegar being the result of acetous fermentation.

Ever since science has been turned to account in matters of everyday life, there has been a growing tendency to supplant the natural with an artificial product. An investigation of how fruit essences are made clearly shows this, while wine and brandy, wholly innocent of the grape, have been successfully manufactured.

It is not surprising then that acetic acid, which is the principal constituent of vinegar, should be prepared and sold in large quantities as vinegar. In fact for many years this has been done, and in the trade it is an open secret that very little malt vinegar is made or sold. Large quantities of pyroligneous acid are obtained for this purpose from the dry distillation of wood, and provided care is taken in the preparation therefrom that the acetic acid is free from compounds of a tarry or creosotic nature, there can be nothing very deleterious in the use of the product for the manufacture of artificial vinegar. At one time a lot of noise was made about the sulphuric acid which was added to even malt vinegar, but no mention is made of this ingredient in the spurious vinegar which was sold at Birmingham, so that it is not very rash to assume that it was a harmless preparation though not malt vinegar.

The pith of the matter seems to be whether it shall any longer be legal to sell a non-fermented preparation under the general name of vinegar. This, apparently, was the point which carried weight with the magistrates, and it is on this account that we are entirely at one with their decision, and we hope to see that decision upheld in the appeal which is to be made at the quarter sessions. The term vinegar in the present day can hardly, we think, be taken as meaning malt vinegar only; because it is so well known that when that article is wanted it is expressly asked for; which is a tacit acknowledgment that ordinary vinegar is not a fermentation product, though real vinegar is such. The thing is this—is it not desirable in the interests of the public to distinctly distinguish between vinegar and malt vinegar? In the case in

question no attempt was made to sell the product as malt vinegar; and numbers of people ask simply for vinegar, knowing they are not getting vinegar made from malted grain. Others, however, may not know this. But if it is made compulsory for the artificial product to be labelled to the effect that it is ordinary vinegar, and *not* malt vinegar, the difficulty is disposed of, the majority will be satisfied, and those who prefer to use pure malt vinegar will be protected.

This would only be in accordance with what is being done in many other cases. Only last week a man was convicted for selling condensed milk from which 80 per cent. of fat had been extracted. A close inspection of the label revealed the fact that the milk was condensed skim milk. The Middlesex Court of Quarter Sessions held that there was no intention to defraud, but convicted all the same, evidently supporting the first decision of the Brentford magistrates, because they considered the nature of the milk should be more clearly set forth. It is hardly likely that a shopkeeper would carefully inform a purchaser that the particular tin he was selling was skimmed milk, but if on the label it was prominently stated that the product was condensed milk, from which 80 per cent. of fat had been extracted, it becomes merely a matter of option with the buyer whether he uses that milk or not. Yet it is a fine point to settle whether it is fraudulent or not, when the nature of an article (which is not what is generally understood by the term condensed milk) is stated in such a way that it is necessary to read a closely-printed label before the purchaser discovers that it is skimmed milk he has bought. We think the magistrates are wise in dropping on this. Let artificial or modified products which are harmless substitutes for the natural article be sold by all means, but let them be so labelled that there can be no misunderstanding about them by the public. By this means such products cannot be classed among adulterated goods. They are legitimate substitutes, which in many cases can only be distinguished from the natural product by analysis, the palate affording no guide.

The case is altogether different with many other articles; such as cattle feeding cakes, for instance, where you have adulteration pure and simple. A linseed cake which contains rape, mustard, cockle seed, cotton husk and sand, or a linseed oil cake fortified with cotton seed oil, cannot be honestly called a linseed cake, nor is it an artificial cake, as it does not contain the albuminous matters peculiar to linseed, obtained by chemical means, and added to the cake. Again rice meal, which contains sulphate of lime and sand, affords another instance of genuine adulteration. The difference, therefore, between an artificial product and an adulterated one is very great. The administrators of our law, however, seem to have grasped the difference, which is fortunate, as it will help the cause of those who are fighting for greater purity in foods, by preventing manufacturers and sellers of substitutes from being unjustly dealt with in the same way as those who are guilty of absolute adulteration, and at the same time protect the public from being imposed upon by anyone who may be unscrupulous enough to try and pass off the manufactured preparation for that obtained by the processes of Nature.

SOCIETY OF CHEMICAL INDUSTRY: London Section.—A meeting of this section will be held on Monday, June 5th, at the rooms of the Chemical Society, Burlington House, at 8 p.m., when a paper will be read by Mr. H. J. Watel on "The movement of air as applied to chemical industries;" and by Messrs. C. F. Cross and E. J. Bevan on "New cellulose derivatives and their industrial applications." Mr. William Thorpe, B.Sc., F.I.C., will occupy the chair.

SPIRITS OF TURPENTINE.

THREE varieties of turpentine are met with on the English market—American, French, and Russian. The American is by far the commonest, French is scarce, while Russian is becoming more common every day. Practically, French and American turpentine are alike in properties, but Russian differs very much from them.

Turpentine is a limpid water-white liquid, having a specific gravity ranging from 0.864 to 0.870, but usually being 0.867. It begins to boil at a temperature of from 156° to 160° C., and entirely distils over below 170° C. Fresh samples leave no residue behind them, but old samples, which may have been exposed to the air generally, leave a small quantity (below 1 per cent.) of non-volatile resinous matter. Turpentine is readily combustible; it flashes at 36° to 38° C. (97° to 100° F.), and burns with a smoky flame, evolving a characteristic odour.

Turpentine can be mixed in any proportion with such bodies as ether, carbon bisulphide, alcohol, benzene, petroleum spirit; while it is a good solvent for oils, fats, resins, etc.

On exposure to the air in bulk turpentine absorbs oxygen from the atmosphere and becomes viscid, finally resinous, at the same time a portion of the turpentine volatilizes. In thin layers the amount of oxidation is a trifle less, for there is more evaporation owing to the extended surface, but the oxidation proceeds somewhat further, and a hard resinous body is the result. It is this feature of turpentine which gives it a special value above all other spirits to the painter and varnish maker, for the resin which is formed acts as binding material for the pigment with which it may be mixed.

All other spirits evaporate away completely, leaving no residue behind. In respect to the degree of oxidation, Russian turpentine has the most power of absorbing oxygen, American next, French least. The product thus formed according to Kingzett has the formula $C_{10}H_{14}O_4$, which he calls camphoric peroxide; this, on heating with water, gives camphoric acid $C_{10}H_{16}O_4$, and peroxide of hydrogen H_2O_2 .

When exposed to air in contact with water crystals of an oxidation product called *sobrerol* are formed. This has the formula $C_{10}H_{14}O_2$, and is probably an hydroxide of turpentine.

When repeatedly distilled with a small quantity of strong sulphuric acid, turpentine undergoes polymerisation, and two bodies are formed. One is known as *terebene*; this has the same composition as turpentine, and boils at 160° C., while the other, known as *colophene*, has the formula $C_{20}H_{32}$, and boils above 300° C. This feature of polymerisation (practically of being converted from a spirit boiling at a low temperature into a spirit boiling at a high temperature) distinguishes turpentine from its substitutes.

Nitric acid acts very energetically on turpentine, forming a variety of oxidation products; if the acid be very strong the action becomes so energetic as to cause the turpentine to take fire.

Chlorine, bromine, and iodine act with great energy on turpentine, so that it is rather dangerous to bring these bodies into contact: one with another, as often explosions ensue.

Turpentine has a strong action on polarized light: French turpentine causes a rotation to the left, its specific value being—30 with but little variation, showing that it is pretty constant in composition, the pure turpentine—*terebenthene*—has a specific rotation—40 American turpentine on the contrary rotates to the right, with a specific rotation ranging in ordinary commercial samples of +8 to +16, the pure terpene—*australene*—has a specific rotation of +21.5. It is generally considered that American turpentine contains a small quantity of a *kevo*-rotatory terpene, and that this varies very much in amount, and hence the reason why the specific rotation of American turpentine varies more than French turpentine. Armstrong considers that there are only two terpenes, which he names *dextro-terebenthene*, which is present in American turpentine, and particularly in Burmese turpentine and *kevo* *terebenthene*—the characteristic terpene of French turpentine.

Russian turpentine resembles the American in many of its properties. It is rather more variable in composition and in specific gravity, which ranges from 0.862 to as much as 0.873. It begins to boil at about 156° C., but does not completely distil over much below 180° C., its principal constituent being *sylvestrene*, which boils at from 172° to 174° C. It rapidly absorbs oxygen from the air, becoming very viscid. Partly on this account, and partly on account of its stronger odour, Russian turpentine has not come much into use in the preparation of paints, although it is rather cheaper than American turpentine. The vapour of Russian turpentine has the effect on some persons of causing headache. Russian turpentine exerts a *dextro*-rotary action on a ray of polarized light; the specific rotation varies much, and ranges between +15 and +23. The pure terpene—*sylvestrene*—has a specific rotation of +19; so that the commercial oil must contain terpenes of higher rotary power. Russian turpentine is used in the preparation of the disinfectant "*Sanitas*."

In all other properties Russian turpentine resembles American and French turpentines.

Turpentine is frequently adulterated, the adulterants which are usually added are petroleum spirit, shale naphtha, rosin spirit, and coal-tar naphtha. The fact of the adulteration and the nature of the adulterant is an easy thing to ascertain; that of finding the extent of the adulteration is far more difficult, and demands care and knowledge on the part of the analyst.

One property distinguishes turpentine from all its substitutes and adulterants—it is optically active, that is, it is capable of acting to a considerable extent on a ray of polarized light. Thus French turpentine has a specific rotation of—30, American turpentine + 9 to + 16, Russian turpentine + 15 to + 22; while the other bodies have no such action.

The specific gravity is a good indication of the purity of turpentine, although it cannot always be relied on, especially when resin spirit has been added.

A method of distinguishing and approximately ascertaining the amount of the petroleum or shale naphtha which has been added is to distil the turpentine with the agency of steam: 100 c.c. of the turpentine are placed in a retort and gently heated with a burner, through the turpentine a current of steam (generated by boiling water in a separate flask) is passed for some time, until no more spirit distills off. Now, fresh turpentine will not leave behind more than 0.2 per cent. of undistillable matter, old samples will leave from 0.5 to 2 per cent.

SULPHATE OF AMMONIA AS A MANURE.

IN a monograph on the use of nitrogenous manures read at the conference of the Old Students' Association, Gembloux, the following particulars concerning sulphate of ammonia are given.

Sources: Gas works, sewage, distillation of organic materials, condensation of the nitrogen from products of combustion, distillation of schists, etc.

Conditions of sale: The price of the nitrogen of nitrate of soda should be compared with that of the nitrogen of the ammonium salt.

Adulterations: Common salt, kainit, ferrous sulphate, etc.

Behaviour in the soil: It decomposes more or less rapidly in contact with the carbonates of the soil (carbonates of lime) and is converted into ammonium carbonate. This combines with the clay and the humus forming insoluble compounds, and this prevents the spontaneous dissemination of the fertilizer throughout the soil.

Ammonium carbonate is volatile and may escape into the air when the decomposition of the sulphate is too rapid (calcareous or recently limed soils) or when it is formed at the surface of a soil which is too dry and poor in humus and clay. When a soil presents favourable conditions of aeration, moisture and temperature, the nitrification of the ammoniacal nitrogen takes place rapidly. It usually requires about a fortnight or three weeks (Muntz and Girard, Schlöesing).

The nitrate formed, chiefly nitrate of lime, dissolves, spreads throughout the soil and can then be removed by water just in the same manner as nitrate of sodium. Statements to the effect that the ammoniacal nitrogen being fixed by the soil could not be lost in this way are therefore erroneous. The annual loss by drainage is nevertheless a little lower than that of nitrate of soda.

Nitrogen being absorbed most freely by the roots in the form of nitrate, it follows that sulphate of ammonium cannot act so quickly as nitrate of sodium; notwithstanding this, it is a rapid fertilizer as compared with other nitrogenous manures. Sulphate of ammonium also produces certain secondary effects. Prepared from about 60 per cent. of its weight of sulphuric acid, the latter is transformed during the decomposition into sulphate of lime or plaster of Paris. Now, this substance appears to act as a stimulant to the nitrification of nitrogenous materials. The carbonate of ammonium we have said combines with the clay as soon as it is formed; this clay contains among its constituents a certain amount of potash which is not easily attacked by the ordinary solvents. The ammonia replaces this potash and thus renders it available for assimilation. Sulphate of ammonium sometimes produces injurious effects upon plants shown by the development of a yellow colour and a drooping appearance. This is no doubt due to the causticity of the carbonate of ammonium which is formed (this action is sometimes produced with fresh manure). Finally when the sulphate is badly spread and comes into contact with the seeds it may injure their germination.

General principles for the use of sulphate of ammonium: From what has been stated it follows that sulphate of ammonium is not suitable for calcareous soils, nor for land in which the nitrification is hindered by the soil being too compact, too moist or too acid.

To decide upon the time at which to apply the sulphate, it is necessary to consider the period which it requires for nitrification. Applied at the time at which vegetation is commencing to develop, no

effect will be produced until after the elapse of the requisite number of days, varying according to the more or less favourable conditions of the soil and the activity of the microbes.

Concerning the dissemination of the sulphate in the soil it is to be observed:—(a) That it may be treated in the same way as nitrate of soda, except that it must not be mixed with basic phosphate or lime. (b) That simple spreading on the surface of the soil is not sufficient to ensure the dissemination of the sulphate in the arable layer. The nitrogen may continue for a long period in the ammoniacal condition in the surface layers during dry weather and may even escape into the air. It is also under these circumstances that the injurious effects on plants are produced.

It follows from this that the manure should always be well worked in. Its use as a top dressing without subsequent harrowing, and second dressing should be strongly discountenanced. The nitrogen of sulphate of ammonium, like that of all manures which readily undergo nitrification being liable to be washed away by drainage water, compels the application of more than the necessary amount and prevents its being applied too long in advance. Experiments made at Rothamsted prove that the plan of applying in the autumn, which is advised by some, necessitates considerable losses.

In general it should be applied in the spring, a little sooner than nitrate of soda, on ground containing the winter sown crops and a few days before the spring sowing or planting. In this way it will exert its action at a useful time and the injurious effects are guarded against.

In any case, leguminous seeds being very sensitive to the caustic action of ammonium sulphate, sulphate should not be used as a top dressing for cereals on which it is intended to sow clover. Heavy rains following the application of this fertilizer do not have the same bad effect as in the case of nitrate of soda. On the other hand the sulphate is less adapted for stimulating growth after the frosts of a cold spring or for rapidly imparting vigour to plants attacked by insects.

The very contradictory results obtained in experiments having for their object the comparison of the agricultural value of sulphate of ammonium and nitrate of soda, are, we believe, largely due to the fact that the principles which must be observed in the use of the sulphate have been, to a great extent, over-looked. Moreover, the secondary effects which may be produced by manures have, to some degree, been lost sight of.

ENAMELLING PAPERS.

THE following are a few methods for enamelling paper to make it waterproof:—1st. Paraffin is melted in a large metal boiler, by heating with a fire or steam coil. When it is perfectly fluid the fire is withdrawn or steam shut off, and the mass cooled and stirred, till it begins to solidify around the edges. Six parts of petroleum, ether, or bisulphide of carbon are added, and the mixture stirred till it becomes solid.

2nd. The paraffin cake is cut into thin shavings with a knife, and placed in an air-tight closed vessel. Five times its weight of bisulphide of carbon is then poured over it, and allowed to stand for three days or so, till it is completely dissolved. By this time the paraffin will be intimately combined with the bisulphide of carbon, forming a thick, milky mass.

The paraffin dissolved according to prescriptions Nos. 1 and 2 is added to the colour as follows:—100 parts of *blanc fixe*, together with the necessary colour to produce the desired shade, are mixed and thoroughly worked up with eleven to fifteen parts of gelatine (glue), previously soaked in water. From twelve to seventeen parts of dissolved paraffin, and about twelve parts of softened wax, such as is usually employed in the manufacture of enamelled papers, are then added. If the colour mixture is too thick for covering, it is thinned down with a corresponding quantity of luke-warm water. It is passed through a fine hair sieve before it is ready for use.

3rd. The paraffin can be added to the colour without previously dissolving it in petroleum or bisulphide of carbon, in the following way:—It is cut into thin shavings, mixed with the colour paste, and the mixture heated to 40° C., with continued stirring, till both are thoroughly and completely incorporated.

Of the above methods the first two are preferable to the third, as the solution of the paraffin is somewhat incomplete in the latter.

Papers enamelled with the above mixture are washable, and are capable of being very highly glazed. The paraffin has no action on the colours, but the sulphuretted hydrogen liberated on long contact of the bisulphide of carbon and glue has an influence on them. It is therefore recommended that the colour mixture be used up as quickly as possible, because as soon as the colour has been absorbed by the paper, and is dry, no chemical action takes place between its constituents.—*Kulhow's Review*.

THE KIESELGUHR FIRE BRICK.

A SOMEWHAT novel brick has recently been introduced under this name as a substitute for ordinary fire bricks. The chief advantage about these bricks is their lightness, which renders them specially suited for blast furnace pipes, covering retorts, &c. They can be used for all the purposes to which an ordinary fire brick is put, as the material of which they are made, *pure* Kieselguhr, possesses chemical properties which render it as infusible as quartz. These bricks have been utilized for special purposes in chemical works, where lightness and great heat resisting and non-conducting properties are desirable, with great success. They are also giving satisfactory results for retort settings at gas works.

The success of these bricks as fire bricks is now undoubtedly established, and as an indication of their lightness as compared with other fire bricks, it may be mentioned that the brick itself has a specific gravity of 0.6. A cubic yard weighs about 12 cwt., which is about a fourth of the weight a cubic yard of Dinas bricks.

Some idea of the composition of the brick can be gathered from the following analysis of the Kieselguhr from which they are made:

Silica	83.8 %
Magnesia	0.7 "
Lime	0.8 "
Alumina	1.0 "
Ferric Oxide	2.1 "
Organic Matter	4.5 "
Moisture and loss	7.1 "

100 0

This is an average analysis, and represents the average composition of Kieselguhr. At present these bricks are not very widely known, and are being introduced by Messrs. A. Haacke & Co., Hackney Wick, London, E., but as they become more widely known they will, we think, grow in favour amongst users of fire bricks for a great number of purposes.

A NEW DEVELOPER.

A NEW photographic developer has been quite recently introduced into this country by Messrs. Fuerst Bros., Philpot-lane, London, under the name of Metol-Hauff. In relating his experience in using this developer in a number of experiments, Mr. A. Pringle says:—It works well—almost indiscriminately—with all the alkalis I have used with it. The caustic alkalis, soda and potash, so unstable in keeping quality, and so hurtful to the skin, are not required. I find it works best with potassium carbonate, but very well with sodium carbonate and with liquor ammoniac. Soluble bromide in the developer affects the density more than the detail, and causes the image to appear more slowly than usual; but even with large proportions of free bromide—up to three grains per ounce of developer—the image, when time is allowed, ultimately acquires both detail and density. The density depends mainly, *ceteris paribus*, on the proportion of alkali used. I have successfully developed negatives after normal exposure with a developer containing 1% of metol-hauff, no free bromide, and nine minims to the ounce of liquor ammoniac, sp. gr. 880. This surpasses all my previous experience of tolerance of ammonia, and the plates used for this experiment were extremely sensitive (Cadett II. and D. 110). But I do not find ammonia a better or more energetic alkali for metol than potassium carbonate. With moderate time the metol-hauff and sulphite of soda (commercial) will alone develop plates that have got even short exposure; the negatives will be full of detail, but probably thin; the density can be at once increased and controlled by gradual addition of an alkaline carbonate. This is a most valuable method for developing plates the exposure of which is doubtful as to correctness. In this way I have "made the best of" undoubtedly under-exposed plates. For bromide paper the best plan is to use the developer fairly strong; if this be done the tones will be very good. If the developer as a whole is much diluted, or if the alkali is much reduced in proportion, or if too much bromide be added, the tones will be more grey and less black than is usually desired. But when soft greyish prints are required, as for after-toning or intensification, the plan is to dilute the developer.

For English workers the following formula is recommended:—

"A" Metol-hauff.....	1 part or 50 grs.	about one
Dissolved in water ..	100 parts or 10 oz.	per cent.
Add sodium sulphite ..	10 parts or 1 oz.	metol.
"B" Potassium carbonate ..	1 part or 1 oz.	10
Water to	10 parts or 10 oz.	per cent.
"C" Potassium bromide ...	0.5 " or ½ oz.	5
Water to	10 " or 10 oz.	per cent.

The developer for normal exposures to consist of three parts of "A" to one part of "B," to each ounce of which may, as a rule, be added 20 minims of "C." For "snap" exposures omit "C." For doubtful or tentative development use 10 minims of "C" to each ounce of developer.

Metol-Hauff keeps better in solution with sodium sulphite or potassium meta-bisulphite than any developing re-agent I know. Even in the presence of an alkaline carbonate it keeps clear and powerful for a long time. The following solution is powerful, well adapted for portrait work, and keeps for many days, if not weeks.

Water	100 parts or 10 oz.
Metol-Hauff	1.5 " or 75 grs.
Sodium sulphite	10 " or 1 oz.
Potassium carbonate	10 " or 1 oz.

To develop, dilute this stock with equal measure of water, bromide as before. In solution metol-hauff does not stain the skin, but the dry crystals do. The solution can be used over again at least four times. If any weakening of the action be suspected an additional trace of alkali will counteract it. Consequently metol-hauff compares favourably with even the pyrogallol developer in economy of time and money. The solution never stains the plates, no "clearing bath" is therefore required. I have not seen any tendency to frill the plates, even when using plates which frilled slightly under other treatment, as in the process of clearing after ferrous oxalate.

It has this advantage over pyrogallol, that if a plate is under exposed, metol will bring out all developable detail without clogging the high light; pyrogallol would probably bring out as much detail, but the negative in other respects would be inferior to that developed with metol.

Metol has this advantage over eikonogen, paramidophenol, and the like, in that density is much more easily obtained with metol in case of either under or over exposure. The density obtained with metol is not of the "black and white" character so frequently seen with such developers as quinol-caustic, but is a more graduated density over the plate. Considerable contrasts of density, as for photo-micrographic or line copying work, can be got with suitable treatment, consisting in general terms of keeping the exposure moderate, and using a large proportion of alkali. Next to ferrous oxalate it seems to have the least tendency to produce fog, *i.e.*, to cause a reduction where a minimum of light-action has taken place.

SILICIOUS FIRE BRICKS.

THE plan which Mr. Joseph Khern, the Austrian metallurgist, has introduced for the manufacture of silicious fire bricks, is an excellent one, and the material produced he describes as being much superior to any other refractory product obtainable in Austria.

The chief ingredient employed is quartz, which must be of the highest degree of purity, especial care and watchfulness being exercised to reject all such portions as show any admixture of iron or copper pyrites, carbonate of lime, or even mica, or felspar. This preparation is similar to that observed in the manufacture of Dinas, and the silicious fire bricks made at Stolburg, near Aix.

The quartz, having been selected in the manner described, is heated in quantities of from 12 to 15 tons in a Rumford oven, or a continuous kiln, as for lime, may be used. At the end of 12 hours, having reached a full red heat, it is thrown into water; the best fragments are then selected and afterwards cleaned by a simple jiggering process, and then subsequently crushed under a tilt-hammer until sufficiently fine to pass through a sieve having 60 holes to the square inch, which leaves the particles coarse and sharp.

Two varieties of fat clay are used to bind the coarsely-pulverized quartz; the clays differ slightly in plasticity, and are very carefully prepared by thorough weathering, pulverization, under light stamp heads, and fine grinding under edge rollers. A final sifting is performed through a very fine sieve of six hundred meshes to the square inch.

The tilt-hammer used for pulverizing the quartz weighs 250 pounds, and is capable of crushing three and one-half tons of the burned quartz in twelve hours.

In selecting the quartz, the purest quality is reserved for the first quality of bricks, which have to resist the greatest temperatures and sudden changes; while the second and third classes of bricks are made for less exposed positions, and are composed chiefly of the remains of bricks which have been once used, and again pulverized and sifted afresh.

The following are the compounds employed for the different classes of bricks:—First class, 16 parts of quartz to one of plastic clay, or 14 parts of quartz to one of leaner clay; second class, 16 parts of ground bricks of the first class to one of clay; third class, 8 parts of ground bricks of the second and third class to one of clay.

The third class bricks are made more with an idea for their employment in portions of the furnace requiring greater mechanical strength than fire-resisting qualities. The materials are first mixed together in a dry condition, on a large, clean, and tight platform of wood, and are then thrown into a tight wooden pugging-box, six feet square and nine inches deep. In this box the dry mixture should be about six inches deep, and be thoroughly incorporated by kneading with water and treading under men's feet, and occasionally turning over the mass with shovels, care being taken not to draw splinters from the wooden box into the clay. A sufficient quantity of water must be added to allow the mixture to be worked into a ball between the fingers without crumbling.

The second and third class bricks are formed in open moulds, the pug being beaten down by a metal rammer of about four and one-half pounds weight; the first class, however, are subject to a pressure of about three and one-half tons to the square inch during a period of three-quarters of an hour before they are removed from the moulds.

The drying is done in chambers through which a current of air passes, at the ordinary temperature in summer, but artificially warmed in winter. The bricks are fit for burning in seven days. The kilns are rectangular chambers, each having two step-grate fire places in one of the shorter sides, and a flue communicating with a high chimney at the opposite end. The capacity is small, being only about 2,500 bricks. As soon as the kiln is filled the charging opening is partly closed, and a gentle fire is kept in the grates, the damper in the flue being closed.

At the end of 36 hours the charging hole is entirely closed, and the draft is stimulated by opening the damper in the flue inch by inch at intervals, until at the end of 72 hours the whole of the bricks have attained a strong white heat. The fires are then removed, the damper closed, the grates filled with sand, and cracks that may have been discovered in the kiln are carefully luted or smeared over with soft mud.

The charging opening should also receive careful attention and be faithfully daubed. After standing in this way for 36 hours, the charging place is gradually opened, and in 60 to 75 hours the burned bricks may be removed.

Foreign Trade Returns.

(Compiled for the JOURNAL from Official Sources.)

THE following is a monthly review of the export and import trade of foreign countries in chemical and allied products such as are produced in the United Kingdom; the actual amount exported by, and imported into Great Britain, being specified where possible.

According to the returns of the Government Statistical Department of Foreign Trade for the month of Feb., 1893, the exports and imports (expressed in 100 kilos.) of the various selected articles undermentioned were as follows:—

GERMANY.

Class.	Imports.	Exports.
	100 kil.	100 kil.
Ores and cements	1,762,512	2,239,413
Vegetable oils, fats, etc.	446,408	89,079
Paper and paper goods	35,003	109,919
Petroleum	594,591	972
Coal and other fuel.....	7,485,224	9,735,800
Tar, pitch, etc.	100,243	24,181

The total weight of the imports for the month show a decrease and the exports show an increase.

ITALY.

The following are the returns for the first two months of 1893:—

Class.	Imports.	Exports.
	Lire.	Lire.
Chemicals, medicines, etc.	5,800,157	5,360,820
Colours, paints, and dyes	4,411,290	1,407,123
Minerals and metals	16,731,663	3,747,191

A Lire is equivalent to 0.25d.

The total exports and imports both show an increase for the two months as compared with the same period in 1892.

INDIA.

The following is a *résumé* of the official returns published by order of the Governor-General in Council, and represents the imports of foreign merchandise into India, and the exports of Indian manufacture and produce, for January, 1893:—

Imports:

Class.	Quantities.	
Salt	tons.	34,852
Quicksilver	lbs.	35,174
Alum	cwts.	5,894
Arsenic	cwts.	85
Bicarbonate of soda	cwts.	315
Chemicals for paper making.....	rupees.	31,646
Sulphur	cwts.	4,669
Quinine	lbs.	2,870
Aniline and alizarine dyes.....	ozs.	10,949,208
Mineral oils	galls.	7,742,812
Linseed oils	galls.	27,821
Gums and resins	cwts.	7,493
Manures	tons.	30
Pitch, tar and dammer	cwts.	17,633
Dynamite and other explosives....	cwts.	536
Cement	cwts.	49,273
Candles	lbs.	360,283
Paints and colours	cwts.	17,807
Soap, all kinds	cwts.	6,463

Exports:

Class.	Quantities.	
Cinchona bark.....	lbs.	1,018,527
Cutch	cwts.	22,095
Indigo	cwts.	32,771
Myrabolams.....	cwts.	61,375
Turmeric	cwts.	2,971
Castor oil.....	galls.	180,345
Cocanut oil	"	44,353
Borax	cwts.	142
Caoutchouc	"	180
Mica	"	35
Saltpetre	"	32,999
Shellac	"	11,035
Oil cake	"	34,175
Soap	"	852
Musk	ozs.	100

In the above mentioned, out of the sum total for each item, the following quantities were either shipped from, or sent to the U.K.:—

Imports.—Of salt, 21,415 tons were imported from the United Kingdom and 6,784 tons from Germany. Of Quicksilver, 15,285 lbs. were sent from the United Kingdom. Of the 7,493 cwts. of gums and resins, 3,765 cwts. were resin. Of paints and colours 10,038 cwts. were sent from the United Kingdom.

N.B.—All Petroleum which has its flashing point at or above 200° F., and is proved to the satisfaction of the Customs collector to be intended to be used for the batching of jute or other fibre, or for lubricating purposes is *free of duty*.

Exports.—Of cutch, 12,632 cwts. were sent to the United Kingdom; of indigo, 14,507 cwts.; myrabolams, 42,853 cwts.; turmeric, 296 cwts.; castor oil, 106,809 galls.; cocoanut oil, 17,321 galls.; caoutchouc, 140 cwts. Of saltpetre, 13,155 cwts. were sent to the U.K., 8,722 cwts. to the U.S.A., 3,386 cwts. to China, and 7,736 to other countries. Of shellac, 4,776 cwts. were sent to the U.K., 880 cwts. to France, to the U.S.A., 3,645 cwts., and 1,734 cwts. to other countries.

The total imports for the month of January show an increase as compared with the same month in 1892, while the total exports also show an increase as compared with the same period of 1892.

MILK ADULTERATION IN CHESHIRE.—Last week the Chester Castle magistrates fined Mary and Emma Johnson, of Sunny Bank, Hoole, 40s. and costs for selling adulterated milk. The sample in question was certified by Mr. J. Carter, county analyst, to contain 20 per cent. of water.

Parliamentary Notes.

MILK ANALYSES.

IN the House of Commons, on Tuesday, Lord G. Hamilton asked the President of the Local Government Board if his attention had been directed to a paragraph in a letter addressed to Dr. Bell, the Principal of the Inland Revenue Laboratory, Somerset House, by the Society of Public Analysts, in September, 1892, and signed by 119 members of the society, including nearly all the public analysts in the United Kingdom, in which they stated that they had long observed with regret the practice of certifying, in a manner liable to be interpreted by the Court as definite, on samples of milk which had been kept for a considerable time, and which, therefore, when examined, must have been in such a condition as to preclude any trustworthy opinion being formed respecting their original composition; also, that the formation of any reliable opinion is in a great many cases impossible under such circumstances, owing to the very irregular character of the changes milk undergoes in keeping; and therefore expressed a hope that in future it would be clearly stated in all certificates that, owing to decomposition, it was impossible to obtain analytical results comparable in point of accuracy with those yielded by the milk when it was fresh; and whether there was any objection to directions being given to Dr. Bell to comply with this request, especially if the practice complained of had led in any instances to failure of justice?

Mr. H. Fowler: I have been in communication with the Board of Inland Revenue on the subject of the question, and I am informed that the statements contained in the paragraph cited must not be accepted as representing the facts connected with the analysis of milks referred to Somerset House, by directions of the magistrates. No analysis of a sample is undertaken if found in a condition which does not allow of a trustworthy opinion being formed respecting its original composition, and there are no valid grounds whatever for believing that any instances of failure of justice have arisen through the evidence contained in the certificates of analysis furnished to magistrates, under the Sale of Food and Drugs Acts, by the chemical officers of the Board of Inland Revenue. In this connection it may be observed, with respect to the samples of milk referred by the justices in disputed cases, and analysed during the year ended March 31, 1893, that of 26 alleged to contain added water, in only two instances did the Somerset House analysts come to the conclusion that no water had been added; and that of 12 samples alleged to have been deficient in fat or cream, in only one instance were they of opinion that the fat was not deficient.

Reports of Companies.

THE NOBEL DYNAMITE TRUST CO., LD.

The ordinary general meeting of this company was held last week at the offices, Winchester House, Mr. Thomas Reid presiding. The Chairman stated that with 1892 they completed the first quarter of a century since the invention of dynamite. Dynamite and gelatine still maintained their supremacy as blasting agents. From time to time they had been led to extend the field of their interests in several directions, so that now, quite apart from their dynamite trade, they had a large interest in various other branches of manufacture, especially in the production of military powder. Considerable orders were executed for smokeless powder during 1892, and the manufacture had been carried on in every way satisfactorily. In regard to the production of smokeless powders, the British Government had adopted a certain course of action, concerning which he was only at liberty to say that the whole matter was the subject of legal proceedings taken by Nobel's Explosive Company (Limited), of Glasgow, to have it declared that the Government were infringing their patents. They had benefited by the low price of raw materials, but he feared that that advantage would not be of long duration, the tendency being already towards a considerable increase of cost. He concluded by moving the adoption of the report, which was agreed to.

THE SAN SEBASTIAN NITRATE COMPANY.

The fourth annual meeting of this company was held at Winchester House, London, on Tuesday last.—Mr. A. R. Robertson presided, and in moving the adoption of the report, said the net profits earned during the year amounted to £9,614. Deducting this from the previous balance, the debit on profit and loss account was reduced to £4,273. 18s. Since the last accounts the balance due to the company's bankers had been reduced by £13,000. Owing to the severe weather last spring there was a falling off in the consumption of nitrate on the Continent of 75,000 tons, consequently prices fell very low—to £7. 10s. per ton. This spring the prices rose very rapidly, owing to the con-

tinuous fine weather, until they reached £10. 10s. per ton; but, recently, they had dropped, owing to the drought, farmers finding it impossible to get the nitrate into the ground. The English companies were all unanimous in their support of the combination to limit the production of nitrate, and so long as that was done a good price would be maintained. The San Sebastian Company found that some of their ground would not stand much more working, but there was good ground in the neighbourhood of their machinery, and they were at present in negotiation for fresh *officinas*.—Mr. Inglis seconded the adoption of the report, and it was agreed to.

THE GAS SUPPLY OF LONDON.

LONDON.

THE quality of the gas supplied to the City of London for the week ending May 20, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'52	10'30	0'30	Nil.
South Metropolitan Gas Co.	6	16'76	11'38	0'70	Nil.
Commercial Gas Co.	2	16'60	9'40	0'30	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

MANUFACTURE OF SODA ALUM.

UNLIKE the solution of potash or ammonia alum, a boiling solution of soda alum of a density of about 60° Twaddle's hydrometer, or 1·3 specific gravity, gives on cooling scarcely any or no crystals, and one which is much above this density, instead of yielding on cooling a crop of well-defined crystals, from which the impure "mother liquor" may readily be drained out, resolves itself into an opaque, viscid or cheesy magma.

It has been proposed to overcome these difficulties by running the hot, strong solution of soda alum, under prescribed conditions, into a cold saturated solution of soda alum, and by that means to obtain good crystals free from the cheesy magma above mentioned. It has been found, however, in actual working, that the quantity of cold saturated solution of soda alum required for this purpose is relatively so large—viz., about three times the quantity of the hot solution—as to make it difficult by ordinary means to so regulate the temperature of the whole as to obtain the crop of crystals, and thus the process is rendered unremunerative.

A magma which requires no treatment with cold solution, but which on being stirred or turned over will resolve itself into soda alum crystals and mother liquor, is produced as follows: A hot, highly concentrated solution of soda alum is prepared in the usual way from ordinary sulphate of alumina and sulphate of soda, or from aluminoferric and sulphate of soda, and this is mixed with a smaller proportion, generally one-half the quantity, of cold saturated solution of soda alum to yield on cooling a magma not too stiff to be freely stirred or turned over.

It is practically more economical to use aluminoferric than a purer sulphate of alumina. A solution of aluminoferric of a strength not exceeding 60° Twaddle, or 1·3 specific gravity, and in this is dissolved the requisite quantity of ordinary commercial salt cake containing the usual percentage of sulphate of soda, the proportions used being about five parts, by weight, of aluminoferric cake to one part, by weight, of salt cake.

The operation is conducted in the lead lined steam dissolving box used by alum manufacturers. While steam is being blown into this box a stream of the aluminoferric solution is run through the box and at the same time the salt cake is shovelled till the whole of it has been dissolved by the aluminoferric solution. The solution thus obtained is run into a tightly covered lead lined tank, in which it is

allowed to stand until the suspended impurities have been settled out. This takes about twenty hours. The clear liquid is then run off into a lead lined evaporator fitted with a coil of lead pipes containing high pressure steam, and by means of this coil the solution is boiled down until it attains a strength of about 90° Twaddle, or 1.45 specific gravity. This boiling liquid is then run into a cold saturated solution of soda alum in the proportion of about two parts, by volume, of the hot solution into about one part, by volume, of the cold liquid, taking care to thoroughly mix the two liquids by means of a suitable stirrer. The mixed liquid is then run into a lead lined cooler of such a depth as will allow the magma that is to be produced to be easily turned over by means of a wooden shovel. Then, by means of a wooden rake, mixed liquids are agitated and cooled until the magma has formed, and the magma is then turned over at intervals by means of a wooden shovel, until it has been brought down to ordinary atmospheric temperature and till it has been transformed into good crystals of soda alum. The agitation of the mixed liquids necessarily tends to cool them more quickly, and thus to hasten the formation of the magma; but if the mixed liquids are allowed to cool without agitation the magma produced may then be turned over, as above described, until it is transformed into good crystals. By these means the magma is converted within a comparatively short time into good soda alum crystals, from which the impure mother liquor may be readily drained out by any well-known means or may be separated by a centrifugal machine. This obtains a crop of soda alum crystals equal to or greater than the weight of the aluminiferous cake employed to produce it. From the resultant mother liquor such proportion as will, together with the small portion of iron removed by the alum itself, withdraw all or practically all the iron that was introduced by the hot concentrated solution is removed, and the remainder of the mother liquor, which is the "cold saturated solution" already referred to, is reserved for mixing with a new increment of hot concentrated solution, as already described. The proportion of mother liquor withdrawn is utilised either (a) for conversion into potash alum or ammonia alum by well-known means, the alumina being readily crystallized out of the solution as potash alum or ammonia alum on the addition of the proper potash or ammonia salts, or (b) is used either in the liquid form or in the form of a cake for the purification of sewage or other impure waters or for any purpose for which impure aluminous compounds may be employed.

THE ELIMINATION OF SULPHUR FROM IRON.

At the meetings of the Iron and Steel Institute held in London last week at the Institution of Civil Engineers, Mr. E. J. Stead read a paper on the above-named subject, the same being a continuation of his contribution read last year. He said, several of the deductions and experiments stated in his first paper had been severely criticized by Herr Hilgenstock, of Hoerde, who challenged the statement that calcium chloride and lime made a suitable material for removing sulphide of iron from liquid iron by forming sulphide of calcium in the slag. Herr Hilgenstock maintained that a third strong reducing agent was necessary to convert the sulphide of iron by the agency of lime into sulphide of calcium. Herr Hilgenstock contended that all or nearly all the sulphur in ingot iron had once in passing existed as sulphurous acid and would have passed away harmless in the form of gas were it not retained and converted into sulphate of lime by the lime in the basic slag, the iron taking the sulphur back again from the sulphate of lime so formed. Herr Hilgenstock had repeated Mr. Stead's experiment and had found precisely the same result, but had formed an entirely different theory—namely, that it was not until the reducing action of hydrogen came into play that the sulphur was removed from the iron. Mr. Stead said that he had now repeated Herr Hilgenstock's experiments, and had obtained exactly opposite results to those obtained by that gentleman. He attributed this to the fact that at Hoerde the mixture of sulphide of iron and lime had not been previously fritted by heating, but had been placed as a mechanical mixture into the crucible; whereas in his own case he had fritted the materials. In the Basic Bessemer process, experiments had confirmed the statement of Dr. Wedding, that it was only during the after-blow that anything more than traces of sulphur was eliminated. Since the Liverpool meeting further experiments had been made at the works of the Wigan Iron and Coal Company with the Saniter process. These experiments had confirmed Mr. Stead's own laboratory experiments, and went far to prove that sulphide of iron was dissolved by chloride of calcium and lime from the crude iron and converted into sulphide of calcium and oxide of iron; and that the oxide so formed then reacted on some of the phosphorus, producing phosphoric acid, which in presence of lime basic slag formed phosphate, the oxide at the same time being reduced to iron. With regard to the belief that a powerful reducing agent was required to effect the removal of sulphur from iron as calcium sulphide, Mr. Stead urged that all the reducing agents necessary were contained

in fluid raw iron. Mr. Stead, referring to the irregular distribution of sulphur in iron and steel, said that the discordant results obtained by different chemists which had been attributed in many cases to the inefficiency of the analyst, were in reality due to difference in the drillings taken from various parts of the piece of iron or steel.

Mr. Saniter, of the Wigan Coal and Iron Company, read a supplementary paper on a new process for desulphurizing iron and steel, describing his further experience with the process since the autumn meeting of the Institute. Comparing his results with ordinary work, Mr. Saniter said he had found that the new process eliminated 78 per cent. of the sulphur, whilst in ordinary work 45 per cent. only was eliminated. Appended to the paper was a report by Mr. George J. Snelus, F.R.S., stating that the Saniter process was "a thoroughly practical, reliable, and inexpensive process for desulphurization, and that by it, using the basic process, white iron made entirely from cinder can be converted into excellent steel without undue waste or loss of time."

The President, in opening the discussion, said the question they must ask themselves was whether the Saniter process was so absolutely sure and reliable that it could be left in the hands of ordinary workmen every day in constant practice. Many thousands of tons of good steel had been made from pig iron not too high in silicon or sulphur; and he asked whether an intermediate process would not give the best results.

Sir Lowthian Bell said they had to deal with the question under two very different aspects. They were invited in the first place to assent to the proposition that lime or its base, calcium, could under certain conditions remove the sulphur from iron. One of these conditions in the calcium was to be in the form of chloride of calcium. If he admitted that calcium or lime was suitable for removing sulphur from iron he would not look in the direction of chloride of calcium to do the work satisfactorily. He warned them against accepting the results in this experimental stage, and said they must wait for further experiments.

Mr. E. Martin said they had tried the Saniter process at Dowlais, but it had not been entirely satisfactory. He was satisfied, however, that chloride of calcium would remove sulphur, and they were continuing the experiments.

Mr. Hawdon (Middlesbrough) said they had tried the Saniter process and approved of it, though at present it was not perfect.

Mr. Snelus endorsed the view of Mr. Stead that calcium was the chief agent in seizing hold of sulphur. The Saniter process would, he said, place in the hands of the hematite people of Cumberland the means of producing the highest class of steel.

Professor Dewar held that pure iron would give conductivity better than copper, and if they could get this result by the Saniter process, it would be very valuable in electrical work.

EXPORTS AND IMPORTS FOR APRIL.

THE Board of Trade returns for the month of April, 1892, show that the slight improvement noticeable in March has not been maintained, there being a net decrease in both imports and exports.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	cwt	98,875	91,334
Copper ore and regulus	tons	23,156	12,403
Hides, dry and wet	cwt.	80,914	67,786
Nitrate of soda	tons	21,863	5,171
Tallow and stearine	cwt.	122,519	148,369
Tin	"	46,948	70,424

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

		Quantities.	
		1892.	1893.
Alkali	cwt.	462,650	647,179
Cement	tons	34,978	39,461
Coal and coke	"	2,332,695	2,386,606
Copper, all kinds	cwt.	133,538	111,463
Iron and steel	tons	223,518	252,159
Chemical manures	"	23,006	24,791
Oils, seed	"	5,906	5,366
Salt	"	61,905	57,942

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- B. AND R.—Thanks for contribution duly received.
 C. T. K.—We are obliged for the trouble you are taking in the matter.
 W. H. W.—We have done as you requested.
 E. J. B. (Paris)—Many thanks for your courteous and appreciative letter. The numbers have been sent on.
 Z.—We are unable to find any such patent in No. 314; would it not be better to give the number of the issue, and page to which you refer, when we shall be glad to assist you as far as we can.
 T. O. & Co.—Thanks for notification of change.
 F. W. C.—We are glad to hear you were pleased with our efforts.
 R. B. W.—We should be sorry to name here all the uses to which it is put; principally it is used for filling paper, also as a manure dryer, and it is not wholly unknown to makers of feeding stuffs. It is used in many ways as a "medium," as, for instance, the manufacture of solid disinfectants. It is not worth much more than twenty shillings a ton.

ST. HELENS WATER-SOFTENING WORKS.

(To the Editor of the Chemical Trade Journal.)

SIR,—I have had my attention drawn to your recent notice of the St. Helens Water-Softening Works, and the supposed difficulties that have arisen. As your information on the subject could not have been full, I ask you to insert the following.

1st. For a few days after the works were opened, an imperfect filtration of the calcium carbonate was obtained. This, however, was speedily rectified, and the filtration is now perfect.

2nd. St. Helens derives its water supply from five sources—three require softening, and two are already soft. No single one of these sources can supply the town. It was decided that each of the hard waters should be softened by itself, in order that the exact value of the process on each water might be known separately. Until this is finished the town *must* be supplied, with a mixture of softened and unsoftened water. Any tests made on this mixture must also be valueless.

From the nature of the waters supplied to the town, it will be of little value ever to take test samples in the town.

I might say that the process is giving great satisfaction—no difficulty whatever is being experienced in maintaining the strength of the Calcium Hydrate (this also is a matter of little importance).

The 1st water operated on for 8 days was reduced from 26° to 11° (mean of 24 tests). Yours, &c.,

JOHN ROBERTSON, M D., B Sc.

St. Helens, May 29th, 1893.

Trade Notes.

DONALD'S CHLORINE CO., LIMITED.—In the Edinburgh Court of Session, on the 23rd ult., an application was made to the Lords of Council and Session for winding up this company, the offices of which are at 82, West Regent-street, Glasgow. The petitioners were Messrs. Cairns and Laing, plumbers and lead merchants, of 5, Carlton Place, Glasgow, who are presumably creditors.

SUGAR REFINERY BURNT.—It is stated that a large sugar refinery in Baltimore, U.S.A., has been completely burnt down. The loss is estimated at nearly a million dollars, the property being owned by a trust.

DISSOLUTION OF PARTNERSHIP.—We have received notice that the partnership lately subsisting between James Sharp, of the Tower Dyeworks, Low Moor, near Bradford, and Samson Breaks as manufacturing chemists and dealers in dye stuffs, has been dissolved and put an end to.

"THE PROVINCIAL PRESS IN LONDON."—This is the title of a new work which is to be published this month. It will not be a directory of provincial papers, but a list of those papers officed in London but published in the provinces. In addition to the usual information regarding the age, price, and politics of the papers, it will contain a description of the towns in which the papers are published, and the earliest time they are on sale in London. The work is being prepared by Mr. W. H. Wellsman, and will be bound in boards (200 pp.), the price being one shilling.

HITS THE NAIL ON THE HEAD.—A writer, in an article of M. Lippmann's latest improvements in colour photography, hammers on one of the chief points in technical education, which is yet a point, as

we have frequently stated, commonly overlooked by those who think they "know all about it." We cannot refrain, says the writer of the article, from pointing a moral realised abroad, but not yet here. The majority of really fruitful discoveries in chemistry and physics come not from the so-called practical man nor the half-educated pupil of a lads' technical school, but from the brains of those who, like a Kelvin, a Lippmann, or a Perkins, have mastered the most abstruse principles of their science. It is on our universities and a half-dozen first class technical schools that we must spend our money if we would see it bring in any serious return. It needs little imagination to perceive the value of a discovery like M. Lippmann's, which widens so immensely our artistic and our scientific horizon. All Englishmen will join in congratulating the physicist capable of such an achievement.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The market for tar products is still exceedingly dull, and though 90's benzol seems to be oscillating between 1s. 6d. and 1s. 4d., and 50-90's between 1s. 5d. and 1s. 4d., yet no considerable amount of business can be done at these prices, in fact, benzol has now reached such a point that its report can be very easily written without reference to the outside at all. Crude carbolic remains as quoted last week, and the business done in anthracene being of no moment renders it impossible to say anything with regard to this article. Pitch remains as already quoted.

A considerable improvement in the sulphate of ammonia market is taking place in consequence of the increased demand from all quarters. From the proceedings of the last day or two it has been shown that there were "bears" who had to cover their short sales, and for which they had to pay smartly. Now that the difficulties of shipment are removed at Hull that port may be expected to resume its normal position. Liverpool and Leith may be now quoted from £12. 2s. 6d. to £12. 5s.; Hull, £12 and higher. Beckton is now £12. 5s., and this price is also asked for July to September delivery, while London outside makes are changing hands at £12. 2s. 6d.

MISCELLANEOUS CHEMICAL MARKET.

Business in most articles has been fairly satisfactory during the past week. Prices, generally, are unaltered. Bleaching powder remains firm at £8 nett prompt, and £7. 15s. consumers' contracts, and makers are well engaged with orders. Soda ash quiet, Caustic soda still steady, and sales continue good; current quotations are: f.o.b. Tyne, 77% £11; f.o.b. Liverpool, 74% £10. 10s.; 70% £9. 10s.; 60% £8. 10s.; cream, 60% £8 5s. ten ton lots and upwards. Soda crystals dull at £2. 13s. bags, and £3 casks or barrels. Saltcake difficult to sell and price generally is weaker. Chlorate of Potash keeps in good demand at 8½d to 8¾d. Soda exceedingly scarce at 10d. Sulphur, quiet; we quote rock £4. 2s. 6d., roll £6. 10s. Sulphate of copper in moderate request at £16. 10s. f.o.b. Litharge £13. with little enquiry. Lead salts dull. White acetate nominally £26 c.i.f., but resale lots are offering at lower figures. Nitrate £19. White powdered arsenic strong and in good demand, price £13. 17s. 6d. to £14. at Garston. Acetates of lime rather firm, and there is more business passing; we quote brown £5. 15s.; grey £10. 15s. Acetate of soda has slightly improved. Carbolic acids firm; we quote crude 70's 2s. 6d.; 60's 2s. 5d. Crystals 39/40°, 7¼d. Sulphocyanides unchanged. Bichromates dull at convention prices. Prussiate of potash 9¾d.

REPORT ON MANURE MATERIAL.

During the past fortnight business has been of a somewhat holiday character, but prices have remained fairly steady.

The quotation for 75/80% Florida phosphate rock remains 8¾d. in cargoes c.i.f. to U.K., 1893 shipment, and that price would probably do for 1894. The nearest value of Peace River rock and of hot-air-dried South Carolina River rock is 6¾d. per unit.

We do not hear of any further business in cargoes of River Plate bones. £4. 2s. 6d. to £4. 3s. 9d. would have to be paid for anything afloat, and £4. 5s. for autumn shipment. For crushed Kurrachee bones, autumn shipment, £4. 3s. 9d., ex quay Liverpool, paid; on spot, £4. 10s. is nearest value. Bombay bone meal is somewhat easier on spot, and £4. 15s. would now buy good quality. For autumn shipment £4. 5s. would be cabled out. Bone ash is more enquired for, and £3. 5s. for 70% is nearest value.

The demand for nitrate of soda has fallen off, and prices have further given way. On spot ordinary quality may be had at 8s. 7½d. per cwt, but refined, being scarce, is held for 9s. 1½d. Pending the decision of the nitrate companies as to total shipments over 1893, there is not much business doing in cargoes ahead.

A parcel of River Plate dried blood, low test, has been sold at 9s. 1½d. per unit of ammonia, ex quay Liverpool; 10s. to 11s., according to quality and position of works in relation to shipping port, asked for home prepared.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Business generally is assuming a more settled tone since the settlement of the strike, but unfortunately another strike (confined to the oil millers) appears to be brewing; still it is to be hoped that wiser counsels may prevail, and that such a calamity may be obviated. Linseed oil has declined about 12s. 6d. per ton on spot. Cotton oil is also quieter, and 7s. 6d. per ton lower on the week's prices, these changes being brought about by the mills resuming work. A cargo of turpentine arrived during the last few days, comprised of 2,000 to 3,000 barrels, for a local firm. The present prices are: Linseed oil, in casks, 20s. per cwt. spot; 19s. 10½d. month. Forward positions are also relatively lower; the market closes dull. Cottonseed oil, refined naked, spot quiet, 20s. 3d., and June/August. For November/April a little business is being done at 18s. Refined rape oil in casks, 26s. 6d. per cwt. Olive oil is exceedingly quiet and few buyers, £36. to £40. per ton. Petroleum jelly without alteration.

CAKES.—Linseed and cotton cakes are both quieter, owing to the renewed supply and poor demand; but the prices of seed and oil will not permit any reduction. The present prices are: Linseed cakes, 95% pure, £8. 15s.; ordinary, £7. 10s.; Russians, £8. 12s. 6d.; cotton cakes, best makes, £5. to £5. 5s. spot, and £4. 15s. Nov./March.

PAINTS.—Business continues highly favourable for a good season, but export business is very limited, and any orders are well competed for. Prices are: Venetian red, dry, £6. to £10. per ton, according to quality; oxide of iron, £9. to £18. per ton; French ochre, J.C., 65s. per ton; fine linseed oil putty, £6. Ready-mixed paints, in tins of 1 lb. to 14 lbs., 28s. to 30s. per cwt.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is dull and business restricted; such business as has been doing on spot has been done at a concession, Lagos being now quoted £24. 15s. per ton transit. Olive is lifeless, there being practically no business doing, and prices are unaltered. Linseed has declined, Liverpool makes being offered at 20s. to 21s. per cwt in export casks. The amount of business doing is small, despite the reduction. Rape is steady, with a small business doing in refined Stettin at 29s. cwt. Cottonseed seems steadier at the decline; Liverpool refined is firmly held at 22s. 6d. to 24s. per cwt., according to quality. Castor oil is firm, and spot price for good seconds Calcutta is now 2½d., with a good inquiry; first pressure French is steady at 2½d. to 2¾d. per lb. Tallow: Prices have a downward tendency, but the inquiry is improving, and there is a fair business passing. Resin, common, is moving rather slowly at 3s. 7½d. per cwt., but business in higher grades is better, fine having advanced, 8s. to 11s. per cwt. now being asked, with a fairly good enquiry. Spirits of turpentine are moving in sellers' favour, and are firm to-day at 24s. per cwt. Petroleum is rather dull, with American at 4½d. to 5¼d., according to quality, and Russian refined 4½d. to 4¾d. per gallon.

COLOURS unchanged and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet. Scotch warrants closed at 40s. 8½d. cash. Middlesbrough 34s. cash, and hematite 44s. 8d. cash. Copper, official prices: Chili bars, G.O.B.'s and G.M.B.'s at £43. 5s. to £43. 12s. 6d. cash, and £43. 16s. 3d. to £44. 3s. 9d.

three months. Tin steady: Straits closed at £85. 15s. to £86. 5s. cash and £84. 17s. 6d. to £85. 7s. 6d. three months. Australian £86. 5s. cash. English ingots, £90. to £90. 10s. Lead, flat: Spanish, £9. 7s. 6d. to £9. 10s. English, £9. 12s. 6d. to £9. 15s. Silesian spelter: Ordinary, £17. 17s. 6d. Nickel, 1s. 8½d. per lb. Antimony, £39. Quicksilver: First hands, £6. 15s.; second hands, £6. 14s. Copper shares: Cape, 1½ to 1¾. Copiapo, 2 to 2½. Libiola, 2½ to 3½. Mason and Barry, 1½ to 2. Rio Tinto, 14¼ to 14½; Tharsis, 4¼ to 4½; Namaqua, ¾ to 1; Panulillo, ½ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Market slightly improved by firmer Glasgow and Middlesbrough Exchanges. Home demand better than foreign. Satisfaction is expressed at the scheme for reconstituting the Wages Board. Steel trunk sheets in good sale at £8. 10s. to £9.; iron sheets doubles, £6. 15s. to £6. 17s. 6d.; trebles, £7. 15s. Belgian sheets are selling at £1. below Staffordshire prices. Hematites 55s. for west coast forge sorts; mottled, 60s.; Northampton and Derbyshire, 39s. to 40s. for common, and 3s. extra for best. Coal slow; prices easy.

GLASGOW, WEDNESDAY.—Market steady, with small business. Scotch done at 40s. 9d. cash, also at 41s. one month; closing with buyers at 40s. 8½d. cash; sellers ask 40s. 9d. Cleveland done at 34s. 1d. cash; closing with buyers at 34s. cash; sellers ask 34s. 1½d. Cumberland hematite closes with buyers at 44s. 8d. cash; sellers ask 44s. 10d. Middlesbrough hematite closes with buyers at 42s. 3d. cash; sellers ask 42s. 6d.

THE LIVERPOOL MINERAL MARKET.

The mineral market remains very firm, with still better prospects. Manganese: Arrivals, nil; demand much better, with improved prices. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) is very quiet; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Shipments are very large, and likely to increase; lump 20s., seconds 16s., thirds 12s. French chalk: The demand for "Angel White" is still very large, and much better prices are ruling. Barytes: Carbonate scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and mangani-ferous are quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firm. Chrome ore: The demand much exceeds the supply, and, in consequence of the Australian crisis, the prices are advancing rapidly, and prospects of shipments are no better. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese improving. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron); finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there is a steady demand and shipments are heavy. Bleaching powder firm at £8. 5s.; caustic soda, 76/77%, £10. 10s. to £11. according to destination; sulphur, £4. per ton; other products unaltered.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8¼d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton;

blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt.—Price, 8s. 6d. per ton f.o.r. or 9s. 1d. f.o.b. Tees.

Coals.—Market generally is quiet with no new feature. Prices are as follows:—Best Northumberland steam, 8s. 6d. to 8s. 7½d. per ton; second qualities, 8s. per ton; small steam, 3s. 6d. per ton; Bunker coals, 6s. per ton; gas coals vary in price from 6s. to 7s. 6d. per ton; coke steady with better demand, price quoted, 13s. 6d. to 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Dye chemicals have further improved in demand, the Turkey red section always excepted, and the calico printers especially have picked up wonderfully, nearly the whole of the works being now on full time. An English and Scotch calico printing syndicate—so often mooted and so often postponed—is again on the stage of rather earnest discussion, and a larger handful than usual believe that the project is about to take effect.

In paraffins and mineral oils extreme quietness still prevails, and prices are not at all firmly held for the bulk of the articles. Burning oil is nominally as before, but a further fall is beginning to be reckoned on, as against next season of winter's contract making; and already, in the case of paraffin spirit (naphtha), the fall has come, some makers having sold lots at 4d. a gallon, about the lowest mark yet touched.

Sulphate of ammonia is on a strong market again, and to all appearance still on the move upwards. Spot price now is from £12. to £12. 5s., while for forward delivery as high as £12. has been got.

General chemicals for the most part still weak. Bleach remains firm, and keeps its price.

Chief prices current are:—Soda crystals, £2. 10s. nett Tyne; soda ash £5. 5s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; alum in lump, £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. 10s., 70/72°, £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. 5s. all nett Liverpool; bleaching powder, £8. 5s. nett Tyne; salicake, 24s.; borax, English refined, £30., and boracic acid, £37. nett Glasgow; bicarbonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, £6. 15s., less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¾d., less 5% Liverpool; nitrate of soda, 9s. 3d. to 9s. 4½d.; sulphate of ammonia, £12. to £12. 5s. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½%, any port; sulphate of copper, £16. 15s., less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin spirit (naphtha) 4d. a gallon; paraffin oil (burning) 4¼d. to 5¼d. at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating), 865°, £3. 15s. to £4.; 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 15,915 bags.

New Companies.

North Devon Clay Co., Ltd.—CAPITAL £10,000. in shares of £10. each. This company has been formed to acquire mines, minerals at and near Peters Marland, Devon, and to work deposits of clay and manufacture and deal in clay goods, etc. The subscribers to the memorandum of Association are:—H. Holwill, Esq., Torrington, Devon; G. N. Fell, 16, St. Helens Place, London, E.C.; J. Jackson, Esq., Torrington; E. Holwill, Esq., Temple Chambers, London, E.C.; D. W. Wallace, Esq., Edinburgh; R. McLean, Esq., 75, Holland-road, Brixton; C. J. Jones, Esq., 28, Cumberland Park, London, N.W.

Scott-Moncrieff's Sewage Purification Syndicate, Ltd.—CAPITAL £7,500. in shares of £1. each. This company has been formed to acquire certain patents for the purification and disposal of sewage. The patents are Nos. 14,181 of 1891 and provisional specifications 17,006 and 19,247 of 1892. The subscribers to the memorandum of association are:—F. J. Martin, 26, Montague-road, London, N. E., gentleman; Wm. Rose, 489, Harrison-road, London, W., clerk; E. Landelles, 109, Islip-street, London, N.W., clerk; C. H. Ommanney, 3 and 4, Great Winchester-street, London, E.C., solicitor; C. H. Barham, 6, Eldon-street, London, E.C., solicitor; E. Steril, Lower Edmonton, Claims Assessor; T. W. Lang, 5, Court, London, E.C., stockbroker.

The Patent List.

This list is compiled from Official sources in the M. Technical Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- An Electro-Chemical Purifying Process in Iron Making, and Purposes. Samuel Dickenson Williams, W. J. Clapp and G. Lewis. May 15th.
Obtaining Carbonic Acid Gas from the Waste Products of Coal. F. Joynson. 9674. May 15th.
New Colouring Matters for Dyeing and Printing. Read Holliday Limited and Robert Holliday. 9689. May 15th.
Improvements in Sulphate of Ammonia Saturators. Joseph Taylor. May 15th.
Filtering Sewage and Obtaining a Harmless Effluent and Deposit. Charles Waite. 9691. May 15th.
Recovering Tin from Tin Scrap. J. F. Duke and F. Redman. 15th.
Improvements in Air Propellers. S. Standing and W. How. May 16th.
Improvements in the Production of Chlorine. Adolph Vogt and. 9767. May 16th.
Apparatus for Sterilising Water. Nicholas Vagn. 9808. May 16th.
Treating Complex Sulphide Ores. W. R. Ingalls and F. Wyatt. 16th.
An Improved Paint. E. Edwards. 9825. May 16th.
Improvements in the Manufacture of Paper. S. Wheeler. 9827. May 16th.
Smoke Prevention. J. Scholesfield and S. Barker. 9845. May 17th.
Azo Colouring Matters. H. E. Newton. 9894. May 17th.
New Sulpho Acids and Derivatives Thereof. H. E. Newton. 17th.
Manufacture of Vitriified Bricks, etc. H. H. Sherwin. 9898. May 17th.
Improved Electrodes for Electrolytic Decomposition Cells. Gerald. 9906. May 17th.
A New Material for Making Varnish, etc. John Renison. 9939. May 18th.
An Improved Manure. J. D. Lewis. 9937. May 18th.
Apparatus for Concentrating Minerals. H. F. Julian. 9955. May 18th.
Apparatus for Extracting Metals from Minerals. H. F. Julian. May 18th.
Manufacture of Basic Colouring Matters. C. D. Abel. 9969. May 18th.
New Colouring Matters. H. E. Newton. 9972. May 18th.
Smoke Prevention. Oliver Howl. 10,009. May 19th.
Recovering Grease from Wool and Hair Wash Waters. A. 10,033. May 19th.
Manufacture of Chlorates. A. J. Boulton. 10,053. May 19th.
Refining Rosin. J. Taylor. 10,072. May 20th.
Manufacture of Metallic Oxides and Compounds. Ernest de Pa. May 20th.

GERMAN PATENTS fortnight ending JUNE 3, 1900

Specially abstracted by Dr. H. Zerener, civil engineer, Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Journal. Dr. Zerener is willing to at once protest against of such new Patents as may collide with the interests of subscribers.

- 8 E. 3,778. Dyeing Hair and Feathers with Sulphonic β -amidophenols and p -phenylenediamine. (Addition to patent of Dr. H. Erdmann, Halle-a-S.)
12 K. 10,163. Preparation of Amidoalkylsalicylic Acids and amidoalkylsalicylic Acids. Kuchler & Buff, Krefeld.
22 D. 5,471. Polyazo Dyes from Dioxidiphenylmethane. Huguenn & Co., Basel.
22 F. 6,333. Preparation of β -Naphthohydrochinonthiosulphonic Acids. F. Bayer & Co., Elberfeld.
22 L. 7,391. Orange Dyes of the Acridine Series. (Addition to patent of A. Leonhardt & Co., Mülheim a-Rh.)
75 F. 5,653. Improvements in Distilling Apparatus for Ammonia. A. Feldmann, Bremen.
22 C. 4,304. Preparation of p -Amidophenolsulphonic Acids and p -Nitrosophenol. (Addition to patent 65,236.) R. Geigy & Co.
28 F. 6,124. Tanning with Carbonic Acid and an Electric Current. E. J. Finot, Paris.
75 S. 7,100. Apparatus for Recovering Ammonia and other nitrogenous bases from Sewage, etc. H. W. Siefert, Halle-a-S.)
12 H. 12,848. Separating Iron and Alumina from Tartaric Acid. Halenke and Moeslinger, Speier-a Rh.
22 F. 5,495. Preparation of Adjective Dyes from Anthradichthyl Phenols. (Addition to patent F. 5,346.) F. Bayer & Co., Elberfeld.
22 L. 7,707. Preparations of Blue Basic Dyestuffs of Dimethyl p -cresol. (Addition to patent L. 7,312.) A. Leonhardt & Co., Mülheim a-Rh.
12 F. 6,437. Obtaining Carbonic Acid Gas by Heating Nitrates. A. Berkel, Berlin, S. W. & R. Fliess, Berlin, N.
12 T. 2,759. Filtering Apparatus. H. J. E. Jense & E. F. Hamburg.
12 K. 10,109. Cleansing Filter Plates. H. Kauberg, Hamburg.

Gazette Notices.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

GIBBINS, JAMES BURT, Mark-lane, E.C., chemical merchant and commis
PAWSON, JOHN, Batley, Yorkshire, oil extractor.

Adjudication.

WATTS, JOHN HUNTER (described in the receiving order, and trading as Watts and Co.), Seething-lane, E. C., chemist and merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending May 20th.

of Lime—

380 pkgs. Lister & Biggs

acid—

74 pkgs. Beresford & Co.

7 G. Rahn & Co.

112 A. & M. Zimmermann

490 c. Arnati & Harrison

um—

5,280 Major & Field

um Chloride—

2 pkgs. Herrings & Co.

Salt—

1 pkge. Philipps & Graves

y—

20 t. J. Bamber

25 W. B. Marcus

22 J. Morrison & Co.

22 Pillow, Jones & Co.

ry, 72 French & Smith

Chloride—

100 pkgs. Cotton Powder Co., Ltd.

—

19 cks. T. T. Creed

21 Leach & Co.

43 W. Harrison & Co.

Acid—

16 pkgs. J. Puddy & Co.

f Lime—

Abbas, 583 pkgs. M. D. Co.

of Iron—

5 pkgs. A. & M. Zimmermann

Duo—

68 c. L. & I. D. Jt. Co.

78 J. H. & G. Scovell

30 Jackson & Till

711 Anderson, Weber & Smith

289 Williams, Torrey & Co.

10 Flageolet & Co.

309 L. & I. D. Jt. Co.

9 Prop. Bull. Wf.

47

131 cks. Cayzer, Irvine & Co.

40 20 brls. J. T. Morton

30 146 pkgs. Beresford & Co.

58 brls. J. Greig

110 Lucas & Spencer's Wharf

110 cs. Anderson, Weber & Smith

Potash—

101 drs. Spies, Bros. & Co.

19 19 cks. Carey & Sons

85 c. F. W. Berk & Co., Ltd.

106 F. Boehm

Soda—

220 c. Beresford & Co.

Is (otherwise undescribed)

12 T. Palmer

10 J. Ashton & Son

40 pkgs. T. H. Lee

10 A. & M. Zimmermann

5 Philipps & Graves

5 T. Jordan & Co.

10 B. & N. Wf. Co., Ltd.

2 pkgs. L. C. & D. Rly.

of Lime—

24 pkgs. Mead, Son & Co.

sulphate—

1 pkge. B. & F. Wf. Co., Ltd.

Cream of Tartar—

France, 5 pkgs. B. & F. Wf. Co., Ltd.

Spain, 5 " "

France, 5 Ross & Deering

" 10 G. Ward & Sons

" 10 C. F. Gerhardt

Spain, 26 W. C. Bacon & Co.

Holland, 3 Middleton & Co.

Italy, 23 Howards & Sons

Dyestuffs—

Argols

Italy, 53 pkgs. Thames S. T. & L. Co., Ltd.

France, 45 Ross & Deering

Italy, 2,837 B. Jacob & Sons

Cutch

Rangoon, 500 pkgs. Wallace Bros.

" 500 Leach & Co.

" 320 H. A. Litchfield & Co.

Holland, 69 pkgs. Leach & Co.

Rangoon, 500 J. & G. Bullock & Co.

Divi Divi

E. Indies, 58 pkgs. J. Hendersen

Extracts

U. States, 10 pkgs. L. & I. D. Jt. Co.

" 2 W. W. Young

Denmark, 1 Sorensen & Co.

" 1 J. Sinclair & Son

" 2 Bailey & Leatham

" 4 R. J. Fullwood & Bland

France, 132 Carey & Sons

Canada, 80 A. J. Humphrey

Belgium, 25 Leach & Co.

Gambler

E. Indies, 4 pkgs. L. & I. D. Jt. Co.

Indigo

E. Indies, 35 chts. Arbuthnot, Lathan, & Co.

" 11 W. Brandts, Son & Co.

" 9 L. & I. D. Jt. Co.

" 20 Wallace Bros.

Myrabolams

E. Indies, 1,376 pkgs. Frith, Sands & Co.

" 683 H. A. Litchfield & Co.

" 1,387 J. P. Alpe & Co.

" 670 Beresford & Co.

" 392 L. & I. D. Jt. Co.

" 3,000 A. Hagan

" 916 W. Shelcott

" 175 W. Hutchinson & Son

Saffron

Spain, 1 pkge. H. R. Boyer

" 1 Price, Hickman & Co.

Sumac

Italy, 1,000 pkgs. M. D. Co.

" 1,305 J. Kitchin, Ltd.

Tanner's Bark

Natal, 51 t. Hicks, Nash & Co.

" 12 Dystel, Nalder & Co.

" 31 A. & W. Nesbitt

" 100 J. T. Rennie, Son & Co.

Belgium, 16 Arnati & Harrison

" 35 Bevington & Sons

Turmeric

E. Indies, 500 pkgs. Prop. Sun Wf.

" 60 Lewis & Peat

Cochin, 306 Ross & Deering

E. Indies, 59 J. Graves

" 250 Anderson, Weber & Smith

" 300 W. H. Sampson

Yalonia

A. Turkey, 104 t. M. D. Co.

" 200 A. J. Humphrey

" 35 J. Graves

" 110 G. Spillman

" 137 A. & W. Nesbitt

" 110 Hicks, Nash & Co.

" 100 Boucher, Mortimore & Co.

Dyestuffs (otherwise undescribed)

U. States, 4 pkgs. W. W. Young

" 4 Kaltenbach & Schmitz

Hong Kong, 3 R. Warner & Co., Ltd.

A. Turkey, 828 Schweder & Co.

Farina—

Holland, 50 pkgs. J. Barber & Co.

" 30 Hicks, Nash & Co.

" 200 J. Anderson & Co.

" 200 Seaward Bros.

Germany, 200 J. Anderson & Co.

Glucose—

U. States, 35 pkgs. 192 c. G. White

" 249 1,280 Humphrey & Co.

" 500 500 C. F. Webster & Co.

Germany, 100 100 J. Barber & Co.

U. States, 675 1,480 R. G. Hall & Co.

" 200 475 Makin & Bancroft

" 250 250 Trier, Meyer & Co.

" 200 1,180 Fuerst Bros.

Guano—

Sweden, 36 t. Anglo-Swedish Co.

Lead Acetate—

Germany, 8 pkgs. F. Boehm

" 16 A. Hughes

" 8 Andersen, Becker & Co.

Manganese—

Japan, 300 t. Craven & Co.

" 300 J. Swire & Sons

Manganese Sulphate—

Germany, 3 pkgs. W. Fenton

Methyl Alcohol—

Germany, 12 dms. Stein Bros.

Mica—

U. States, 450 Knight & Morris

Norway, 10 1 cs. R. G. Hall & Co.

E. Indies, 32 W. M. Smith & Sons

Ochre—

France, 242 cks. W. Harrison & Co.

Holland, 1 11 pkgs. Philipps & Graves

Painters' Colours—

Germany, 15 pkgs. T. H. Lee

" 5 Philipps & Graves

" 8 3 cks. L. & I. D. Jt. Co.

" 60 cks. Drolenvaux & Bremner

France, 10 W. Harrison & Co.

Sweden, 50 Philipps & Graves

U. States, 10 cs. W. Johnston & Co., Ltd.

Belgium, 36 pkgs. T. Palmer

France, 20 Flageolet & Co.

" 2 7 cs. Hernu, Peron & Co.

Germany, 8 cks. Becker & Ulrich

U. States, 50 cs. A. C. Davey

Germany, 15 cks. C. Atkins & Nisbet

Paraffin Wax—

Rangoon, 1,160 cs. H. Hill & Sons

U. States, 899 brls. J. H. Usmar & Co.

Phosphate Rock—

France, 200 t. Lawes Manure Co.

" 435 H. Hunter & Co.

U. States, 2,100 Clod, Routledge & Co.

Belgium, 258 Lawes Manure Co.

Pitch—

France, 72 brls. J. Greig

" 175 cks. H. Hill & Sons

N. Russia, 1,101 brls. Fellows, Morton & Co.

" 50 cks. J. Greig

Plumbago—

E. Indies, 59 brls. L. & I. D. Jt. Co.

Ceylon, 386 R. G. Hall & Co.

" 18 H. A. Litchfield & Co.

Belgium, 13 cs. T. H. Lee

E. Indies, 54 brls. A. Howden & Co.

Germany, 1 ck. B. & F. Wf. Co., Ltd.

" 130 cs. Prop. Scott's Wf.

Ceylon, 92 brls. L. & I. D. Jt. Co.

Germany, 316 A. Howden & Co.

" 15 cs. T. H. Lee

Potash—

France, 104 c. Petri Bros.

Potassium Carbonate—

France, 30 c. Spies, Bros. & Co.

" 130 J. A. Reid

Germany, 40 Charles & Fox

" 79 A. J. Luke & Co.

" 400 Pillow, Jones & Co.

Pyrites

Germany, 1/2 t. H. Lambert

Spain, 797 t. Anderson, Anderson & Co.

Rosin—

France, 13 brls. F. & S. Chiesman & Co.

U. States, 410 G. Nutter & Co.

" 1,000 Prod. Brokers Co.

" 3,000 Moore & Hole

Germany, 1 Herrmann, Kellar & Co.

Saltpetre—

Caleta Buena, 8,825 bgs. A. Ford & Co.

Chili, 14,112 bgs. W. Montgomery & Co.

Germany, 3 cks. 20 kgs. Brown & Elmslie

" 3 W. H. Mitchell

" 1 T. Jordan & Co.

Sodium Acetate—

France, 27 pkgs. S. F. Waters & Co.

Stearine—

France, 71 bgs. J. G. dard & Co.

Holland, 65 cks. Palmer & Co.

Belgium, 14 H. Hill & Sons

" 145 " "

Sulphur—

Italy, 50 J. Besant

" 9 Galbraith, Pembroke & Co.

" 5 M. D. Co.

" 16 R. Morrison & Co.

" 10 Brandram Bros. & Co.

" 10 F. L. Sitzer

" 6 J. Houghton & Sons

Tallow—

Germany, 2 cks. Philipps & Graves

Melbourne, 215 Sollas & Sons

Sydney, 170 Pillow, Jones & Co.

France, 145 bgs. E. W. Fischel & Co.

" 60 cks. C. B. Leighton

Sydney, 67 Sollas & Sons

" 29 Flack, Chandler & Co.

N. Zealand, 64 Low, Sons & Bedford

China, 3 cs. L. & I. D. Jt. Co.

Melbourne, 2 cks. J. Morrison & Co.

Sydney, 50 Leach & Co.

" 288 Elkan & Co.

Queensland, 220 Anning & Cobb

N. Zealand, 14 Culverwell, Brooks & Co.

" 2 Dalgety & Co., Ltd.

" 34 Ntnl. M. & A. Co. of N. Z.

" 87 Flack, Chandler & Co.

N. Zealand, 88 N. Z. L. & M. A. Co.

Queensland, 226 L. & I. D. Jt. Co.

" 354 Philipps & Graves

" 124 S. J. Clark

Sydney, 296 A. B. Curtis & Co.

Melbourne, 249

" 93 Cuthbert & Hall

" 133 Dalgety & Co., Ltd.

" 576 Elkan & Co.

" 39 Kaul & Haenlein

Queensland, 129 N. Z. L. & M. A. Co.

Belgium, 1 cs. Arnati & Harrison

Tartaric Acid—

Italy, 9 pkgs. Galbraith, Pembroke & Co.

Holland, 6 J. Owen

Italy, 33 M. D. Co.

Zinc Oxide—		
Germany, 100 brls.	M. Ashby, Ld.	
Holland, 63	"	
" 100	Phillips & Graves	
" 100	W. Balchin	
" 100 625 cks.	Soundy & Sons	
Germany, 42	J. Matton	

LIVERPOOL.

Week ending May 18th.

Acetic Acid—		
Hamburg, 2 cs.	D. Currie & Co.	
Ammonia (Liquid)—		
Antwerp, 4 cks.	J. T. Fletcher & Co.	
Ammonium Sulphate—		
Marseilles, 8 brls.		
Boracic Acid—		
Leghorn, 66 cks.	Pickford & Co.	
Castor Oil—		
Marseilles, 541 brls.	150 cs.	
" 5	Evans, Sons & Co.	
" 4	Rowand & Co.	
" 30 cs.	R. Steinmann & Co.	
Genoa, 12	A. E. Cohn	
Leghorn, 7		
Calcutta, 250	Petrocochino Bros.	
" 816	Ralli Bros.	
" 475		
Chemicals (otherwise undescribed)		
Rotterdam, 23 cks.		
Chloroform—		
Havre, 26 pkgs.	Cunard S. S. Co. Ltd.	
Colours—		
Hamburg, 2 cs.	D. Currie & Co.	
In transit, 20	"	
Rotterdam, 29	"	
Antwerp, 8	J. T. Fletcher & Co.	
Cream of Tartar—		
Marseilles, 7 brls.		
Dyestuffs—		
Algarobilla		
Valparaiso, 150 bgs.	Hughes, Treleven & Co.	
Anatto		
Bordeaux, 32 cks.		
Argols		
Oporto, 23 cks.	German Bank of London	
Cutch		
Rangoon, 2,270 bxs.		
Divi Divi		
Rio Hacha, 270 t.	E. Brownbill & Co.	
" 158	Loewenthal & Railton	
Rotterdam, 4 bgs.		
Extracts		
Marseilles, 1 cs. 26 brls.		
New York, 25 bxs.		
Trieste, 600 brls.		
Fustic		
Colon, 446 ps.	Midgley & Sons	
" 1,250	A. & S. Henry & Co. Ltd.	
" 281	A. Dobell & Co.	
Indigo		
Calcutta, 7 chts.	Baring Bros. & Co.	
Myrabolams		
Calcutta, 700 pkts.		
Bombay, 280 bgs.	D. Sassoon & Co.	
Saffron		
Valencia, 2 bgs.		
Valonia		
Smyrna, 1,022 bgs.		
Farina—		
Amsterdam, 40 bls.		
Glucose—		
New York, 465 brls.		
Rouen, 10 cks.	Co-op. Wholesale Society	
Dunkirk, 100 bgs.		
Iodine—		
Valparaiso, 25 brls.	A. Gibbs & Sons	
" 39		
Lime—		
N. York, 1,170 bgs.		
Ochre—		
Marseilles, 43 brls.		
Paint—		
Bordeaux, 11 tins.		
Boston, 42 cs.	G. Rolla	
" 25	M. Nicol & Co.	
" 6	Doust Bros.	
" 30		
Montreal, 20		
Marseilles, 12		
Phosphate—		
Ghent, 500 bgs.		

Phosphate of Lime—		
Terneuzen, 226 t.	U. A. Co. Ld.	
Pitch—		
Boston, 6 pkgs.		
Dunkirk, 56 cks.		
Plumbago—		
Colombo, 106 brls.		
Potash—		
Rouen, 46 cks.	Co-op. Wholesale Society	
Hamburg, 12 cks.	D. Currie & Co.	
Portland, M. 25 brls.	Makin & Bancroft	
Dunkirk, 21 cks. 21 dms.		
Pumice Stone—		
Leghorn, 8 cs.		
Pyrites—		
Huelva, 1,701 t.	Matheson & Co.	
" 1,792	Tennants & Co.	
Rosin—		
Marseilles, 13 cs.		
Saltpetre—		
Calcutta, 396 bgs.	Ralli Bros.	
" 1,722		
Hamburg, 20 kgs.	2 brls. D. Currie & Co.	
Soap—		
Leghorn, 600 bxs.	Weaver & Sterry	
Naples, 99 cs.	P. Behrends	
" 30		
Philadelphia, 50 crts.	1,200 bxs.	
Soapstone		
Genoa, 400 bgs.	G. G. Blackwell	
Sodium Nitrate—		
Pisagua, 9,985 bgs.		
Stearine—		
Antwerp, 10 tgs.	J. T. Fletcher & Co.	
" 13		
Sulphur—		
Catania, 100 bgs.		
Huelva, 1,080 t.	Matheson & Co.	
Talc—		
Genoa, 100 bgs.		
Tallow—		
New York, 45 hhds.	100 tcs.	
Rouen, 284 bgs.	Co-op. Wholesale Society	
Boston, 135 hhds.		
Philadelphia, 100 tcs.	100 brls.	
B. Ayres, 40 pkgs.	50 hhds.	
Tartar—		
Bordeaux, 10 cks.		
Tartaric Acid—		
Marseilles, 4 brls.		
Rotterdam, 26 cks.	10 kgs.	
Tincol—		
Calcutta, 115 bgs.		
Tin Oxalate—		
Rotterdam, 6 cks.		
Ultramarine—		
Rotterdam, 36 cs.	3 cks.	
Verdigris—		
Bordeaux, 1 ck.		
Waste Salt—		
Hamburg, 90 t.	D. Currie & Co.	
White Lead—		
Rotterdam, 36 cks.		
Zinc Ashes—		
Antwerp, 1 ck.		
Zinc Oxide—		
Rotterdam, 105 cks.		
Antwerp, 20 brls.	J. T. Fletcher & Co.	
" 70		

HULL.

Week ending May 20th.

Acetate—		
New York, 747 bgs.	Wilson, Sons, & Co., Ld.	
Acid—		
Rotterdam, 41 blins.	W. & C. L. Ringrose	
Aluminium—		
Flushing, 1 cs.	Wilson, Sons, & Co., Ld.	
Ammonium Sulphate—		
Hamburg, 345 bgs.		
Barytes—		
Antwerp, 217 cks. 45 bgs.	Bailey & Leatham	
Bremen, 63	103	
Rotterdam, 10	Hutchinson & Son	
Castor Oil—		
Marseilles, 5 cs.	Wilson, Sons, & Co., Ld.	

Chemicals (otherwise undescribed)		
Rotterdam, 4 cks.	W. & C. L. Ringrose	
Bremen, 2	J. Pyefinch & Co.	
Colours—		
Flushing, 11 cs. 28 cks.	Wilson, Sons, & Co., Ld.	
Rotterdam, 60 pkgs.	W. & C. L. Ringrose	
" 3	G. Lawson & Sons	
Bremen, 4	H. T. Greaves & Co.	
Rotterdam, 1	J. Pyefinch & Co.	
" 4	C. M. Lofthouse & Co.	
" 3	Hutchinson & Son	
Cottonseed Oil—		
New York, 5 brls.	Wilson, Sons, & Co., Ld.	
Cryolite—		
Copenhagen, 5 cks.	Wilson, Sons, & Co., Ld.	
Dextrine—		
Stettin, 100 bgs.	Wilson, Sons, & Co., Ld.	
Dyestuffs—		
Alizarine		
Rotterdam, 90 pkts.	W. & C. L. Ringrose	
Divi Divi		
Hamburg, 714 bgs.	Wilson, Sons, & Co., Ld.	
Indigo		
Amsterdam, 3 chts.	W. & C. L. Ringrose	
Madder		
Rotterdam, 2 cks.	G. Lawson & Sons	
Farina—		
Stettin, 750 bgs.	Wilson, Sons, & Co., Ld.	
Harlingen, 100	W. & C. L. Ringrose	
" 409	Hutchinson & Son	
Rotterdam, 20		
Glucose—		
Stettin, 1,100 bgs.		
New York, 50 brls.		
Ochre—		
Rouen, 50 cks.	Wilson, Sons, & Co., Ld.	
Marseilles, 89 brls.		
" 3		
Dunkirk, 15 cks.	Wilson, Sons, & Co., Ld.	
Paint—		
Christiania, 8 dms.	Wilson, Sons, & Co., Ld.	
Boston, 30 cs.	"	
New York, 54 pkts.	"	
Potash—		
Dunkirk, 20 dms.	Wilson, Sons, & Co., Ld.	
Pumice Stone—		
Leghorn, 292 pkts.	Wilson, Sons, & Co., Ld.	
" 27 cs.		
Messina, 57	Wilson, Sons, & Co., Ld.	
Rosin		
Bordeaux, 3 cks.		
Saltpetre—		
Hamburg, 13 bgs.	C. M. Loft-house & Co.	
Soap—		
Naples, 72 cs.	Wilson, Sons, & Co., Ld.	
Marseilles, 27	"	
Soda—		
Rotterdam, 12 brls.	Hutchinson & Son	
Sodium Nitrate—		
Iquique, 10,143 bgs.		
Tallow—		
New York, 211 pkts.	Wilson, Sons, & Co., Ld.	
Tar—		
Rotterdam, 1 brl.	Sissons Bros. & Co.	
Stockholm, 10	Wilson, Sons, & Co., Ld.	
Reval, 1 ck.	Bailey & Leatham	
Tartaric Acid—		
Bordeaux, 2 cks.		
Rotterdam, 4	W. & C. L. Ringrose	
" 2	Hutchinson & Son	
Ultramarine—		
Bremen, 8 cks.		
Rotterdam, 2	Hanger, Watson, & Harris	
" 8	Todd & Son	
" 8	Hutchinson & Son	

Varnish—		
Antwerp, 5 cs.	J. & W.	
New York, 95 pkts.	Wi	
White Lead—		
Antwerp, 62 cks.		
Rotterdam, 9	Few	
" 27	A. Sande	
" 29	Hutchin	
Zinc Oxide—		
Rotterdam, 10 cks.		
Zinc White—		
Amsterdam, 12 cks.		

GLASGOW.

Week ending May 2

Aniline Colours—		
Hamburg, 1 cs.		
Arachide Oil—		
Rotterdam, 1 ck.	J.	
Barium Sulphate—		
Antwerp, 21 cks.		
Barytes—		
Rotterdam, 139 cks.		
Castor Oil—		
Calcutta, 2,950 cks.		
Antwerp, 84 brls.	23 d	
Chemicals (otherwise unde)		
Rotterdam, 3 cs.	J. I	
Colours—		
Rotterdam, 0 cs.	1 d. J.	
Antwerp, 1 brl.		
Rotterdam, 32 pkgs.		
Amsterdam, 1 cs.	2 dks.	
Dyestuffs—		
Alizarine		
Rotterdam, 12 cks.	J. B.	
" 116 pkgs.		
Extracts		
Antwerp, 9 cks.		
Baltimore, 6 brls.	J. Sum	
New York, 100 bxs.		
Myrabolams		
Calcutta, 227 bgs.		
Dyestuffs (otherwise unde)		
New York, 1 brl.		
Glucose—		
New York, 621 brls.		
Lead Acetate—		
Hamburg, 11 cks.		
Ochre—		
Rouen, 4 cks.		
Painters' Colours—		
Antwerp, 7 cks.		
Phosphates—		
Ghent, 1,000 bgs.		
Potash—		
Rotterdam, 34 cks.	J. B.	
Rosin—		
New York, 750 brls.	Rowley	
" 2,000		
Sodium Acetate—		
Rouen, 8 cks.		
Stearine—		
Rotterdam, 23 bls.	J. B.	
Tallow—		
New York, 160 hhds.	52 brls.	
Tartaric Acid—		
Rotterdam, 10 cks.	J. B.	
Varnish—		
New York, 15 brls.		
Zinc Ashes—		
Antwerp, 2 cks.		
Zinc Oxide—		
Antwerp, 95 brls.	25 dks.	

TYNE.

Week ending May 20

Barytes—		
Rotterdam, 22 cks.	Tyne S	
Paint—		
Rotterdam, 1 dm.	Tyne S	

— 00 t. Langdale's Chemical Manure Co. 80 t. Clephans & Wiencke 4 cks. Tyne S. S. Co. rate— 150 t. J. Cameron Swan & Co. old— 4 cks. Tyne S. S. Co. — 25 brls. Tyne S. S. Co.	GOOLE. <i>Week ending May 17th.</i> Antimony— Boulogne, 3 cks. Caoutchouc— Boulogne, 17 cks. Dyestuffs— Extracts Rouen, 20 cks. Fustic Jamaica, 65 t.	Logwood Jamaica, 885 t. Dyestuffs (otherwise undescribed) Boulogne, 54 pkgs. 42 cks. 8 cs. Ghent, 3 2 Phosphate— Ghent, 100 t. Potash— Calais, 30 dms. Saltpetre— Hamburg, 2 cks. Rotterdam, 100 bgs. Waste Salt— Hamburg, 160 t.	Zinc Oxide— Antwerp, 25 brls. GRIMSBY. <i>Week ending May 20th.</i> Caoutchouc— Hamburg, 2 cs. Chemicals (otherwise undescribed) Hamburg, 6 pkgs. Rotterdam, 4 Dyestuffs (otherwise undescribed) Dieppe, 10 cks. 2 pkgs.
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>ending May 24th.</i> 42 cs. £45 ay, 1 t. 13 c. £5 1 1 10 1 1 10 2 20 12 6 5 t. 6 c. £28 Cake— 5 t. 2 c. £30 — 5 cs. £22 Carbonate— 1 t. 10 c. £14 1 t. 8 38 10 cks. 24 10 37 10 19 Chloride— 11 cks. £10 10 62 28 18 1 cs. 163 10 10 Sulphate— 250 t. £3,000 30 342 30 345 150 1,638 17 228 Ammonia— 10 c. £73 5 cs. 33 5 t. 8 c. £71 of Carbon— 1 t. 5 c. 50 drs. £64 11 c. £28 6 9 14 23 100 cs. £106 2 c. 14 19 287 da— 15 c. £15 6 5 6 5 2 t. 4 26 <i>(otherwise undescribed)</i> 6 cs. £24 1 15 2 25 9 22 1 t. 15 c. £269 6 962 3 497 3 5 5 39 5 40 10 ts— 5 43 3 cks. £60	Aniline Oil Rotterdam, 24 drs. £700 Barcelona, 2 pkgs. 20 Genoa, 10 320 Anthracene Dusseldorf, 118 cks. £535 Rotterdam, 799 4,031 Benzol Hamburg, 10 cks. £108 Calais, 24 brls. 65 Boulogne, 92 315 Rotterdam, 26 drs. 414 Coal Tar Extract Boston, 15 cks. £420 Creosote Danzig, 100 brls. £47 Malmo, 25 15 Huelva, 4,190 1,466 Selzate, 525 121 Ghent, 399 146 Creosote Salts Philadelphia, 812 bgs. £125 Naphthaline Trepont, 50 cks. £61 Hamburg, 172 bgs. 68 Dunedin, 20 46 Paraffin Wax Sydney, 50 bgs. £120 Pitch Constantinople, 200 brls. £75 Dunkirk, 1,173 t. 1,730 Helsingfors, 299 329 Caen, 120 156 Cette, 900 1,535 Ghent, 427 625 New York, 250 brls. 2,431 bgs. 550 Boston, 250 98 Philadelphia, 2,231 bgs. 305 cks. 495 Pyridine Hamburg, 25 brls. £203 Tar Rio de Janeiro, 100 rls. £43 Sydney, 75 drs. 20 Melbourne, 156 pkgs. 34 Helsingfors, 699 brls. 312 Philadelphia, 250 cks. 118 Trinidad, 15 13 Kustendjie, 10 20 Calais, 71 39 Tar Oil Paris, 15 cks. £33 Trepont, 25 brls. 12 Copper Sulphate— Trieste, 5 t. 2 c. £77 Zante, 10 9 Lisbon, 29 19 Santos, 2 19 Bordeaux, 20 343 Paris, 5 85 Cream of Tartar— Adelaide, 10 c. £44 Melbourne, 1 t. 80 Disinfectants— Hamburg, 65 cks. £325 Brussels, 10 50 Cape Town, 20 pkgs. 40 Boston, 6 t. 160 Melbourne, 4 13 Natal, 41 cs. 56 Shanghai, 23 cks. 64 Guano— Cherbourg, 50 t. £40 Nevis, 35 385 Iodine— M. Video, 1 cs. £10	Iron Sulphate— Santos, 50 brls. £12 Manure— Genoa, 20 t. £65 Malaga, 21 17 c. 176 Gothenburg, 29 11 71 Carthage, 98 8 784 Barcelona, 37 1 296 Barbadoes, 101 10 895 Cullera, 585 4,680 G. Canary, 101 16 876 Hamburg, 197 700 Phosphorus— Lisbon, 2 cs. £22 Picric Acid— Bombay, 3 c. £22 Potassium Chlorate— Lisbon, 6 brls. £26 Hong Kong, 8 c. 34 B. Ayres, 2 8 Brussels, 3 13 Potassium Iodide— M. Video, 1 cs. £16 Potassium Prussiate— Antwerp, 1 t. £80 Genoa, 1 80 Salicylic Acid Adelaide, 1 c. £30 Saltcake— Ghent, 65 t. £130 Saltpetre— Oporto, 4 t. £81 Lisbon, 8 19 c. 172 B. Ayres, 15 17 Gibraltar, 5 t. 1 107 Melbourne, 1 22 Salts of Tartar— B. Ayres, 10 c. £11 Sheep Dip— Melbourne, 50 cs. 50 kgs. £350 Sydney, 50 350 Natal, 150 drs. 33 Soda— Sulina, 1 t. £5 Perth, 1 13 c. 6 Soda Crystals— Singapore, 1 t. 13 c. £7 Penang, 1 6 5 Sydney, 96 4 259 Newcastle, 27 12 84 Soda Salts— New York, 3 t. 10 c. £75 Sodium Bicarbonate— Sydney, 1 t. £21 Melbourne, 5 10 c. 31 Singapore, 3 6 Natal, 10 10 Sodium Sulphite— Adelaide, 5 c. £11 Sulpho Carbolate of Soda— Philadelphia, 1 c. £10 Sulpho Carbolate of Zinc— Philadelphia, 2 c. £19 Sulphur— Lisbon, 35 bgs. 250 brls. £210 Philadelphia, 1 t. 13 c. 57 Sulphuric Acid— Penang, 1 t. 5 c. £13 Superphosphate— Cherbourg, 55 t. £165	Tartaric Acid— B. Ayres, 5 c. £28 Adelaide, 5 28 Yokohama, 10 50 LIVERPOOL. <i>Week ending May 24th.</i> Alum— B. Ayres, 9 t. 19 c. 3 q. £59 Halifax, 2 16 14 Piraeus, 1 9 7 Alexandria, 6 10 39 Alum Cake— Calcutta, 6 t. 10 c. 2 q. £20 Ammonium Carbonate— Hamburg, 3 t. 8 c. £99 Genoa, 2 68 Halifax, 5 7 Ancona, 5 2 q. 8 Ammonium Sulphate— Sourabaya, 66 t. 2 c. 1 q. £829 Samarang, 20 7 250 Tagal, 99 16 2 1,198 Pecalanga, 60 4 577 Barbadoes, 50 630 Madeira, 1 12 Gr. Canary, 1 12 Valencia, 30 13 2 98 Asbestos— Bombay, 1 cs. 172 Lisbon, 4 10 bls. 17 Barium Chlorate— Hamburg, 9 c. £40 Bleaching Powder— Ancona, 9 cks. 14 brls. Boston, 785 Hamburg, 33 Montreal, 253 New York, 205 110 brls. Baltimore, 80 Genoa, 31 Nantes, 15 Naples, 54 San Francisco, 88 254 Trieste, 10 Boracic Acid— Montreal, 1 t. 2 q. £40 Boston, 3 9 c. 4 126 Borax— Rotterdam, 10 t. 1 c. 1 q. £314 Hamburg, 1 3 30 Constantinople, 3 3 1 brl. 11 Vera Cruz, 11 6 Ghent, 2 60 Calcium Chloride— Odessa, 4 t. 19 c. £12 Carbolic Acid— Rotterdam, 2 c. £8 New Orleans, 10 t. 2 389 Caustic Soda— Baltimore, 250 dms. 135 brls. Barrinquilla, 28 28 cks. Boston, 28 cks. Constantinople, 40 Naples, 35 N. Orleans, 132 N. York, 50 bxs. 209 150 brls. 20 kgs. Pernambuco, 100 Seville, 165
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Sydney,	40
Talcahuano,	54
Valencia,	162
Algiers,	50
Ancona,	50
Barcelona,	100
Hari,	71
Bordeaux,	17
Carril,	3
Corunna,	4
Ferrol,	12
Genoa,	96
Hio,	50
La Guayra,	20
Lisbon,	30
Nantes,	35
Odessa,	125
Rio de Janeiro,	20
Samarang,	14
San Francisco,	30
Santander,	6
Trieste,	14
Yokohama,	102

Chemicals (otherwise undescribed)

Genoa,	10 c.	£16
Hamburg,	4	17
Alexandria,	7 2 q.	12
New York,	9 4	210
Maranham,	9 1	10

China Clay—

Bombay,	7 t.
Boston,	602 10 c.
Calcutta,	100 cks.
Hamburg,	10
Naples,	4
Piræus,	15 t. 3

Chlorate of Potash—

Hamburg,	5 t. 5 c.	£300
New York,	7 10	423
Philadelphia,	8 15	455
Antwerp,	2	116
Cape Town,	1	56
Rotterdam,	3 15	239
Hio,	14 10	994
Gothenburg,	1 10	114
Naples,	15	48
Lisbon,	4	24
San Francisco,	1 5	95
B. Ayres,	10	28

Coal Products—

Aniline Colours	
Madras,	5 cks.
New York,	5 kgs. 9 cks.

Aniline Dyes

Shanghai,	30 cks.
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Aniline Oil

Genoa,	20 dms.
Philadelphia,	10

Aniline Salts

New York,	16 cks.
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Pitch

Havre,	315 t.
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Tar

Ibrail,	40 brls
Addah,	20
Leghorn,	1 ck.
Penang,	22 t. 10 c.

Copperas—

Alexandria,	14 t. 7 c.	£23
Syra,	9 17	19
Monte Video,	10 5	19

Copper Sulphate—

Bordeaux,	334 t. 12 c. 3 q.	£5,357
Vigo,	2	37
Lisbon,	24 14	408
New Orleans,	1	17
Halifax,	1 5	20
Naples,	24	462
Bilbao,	1 12 3	30
Venice,	3 1 3	49
Trieste,	8 6 3	130
Rouen,	5 14	91

Cream of Tartar—

Frontera,	2 c.	£9
St. John's, Nfld.,	5	20

Cressylic Acid—

Rouen,	5 t. 13 c.	£100
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Guano—

Valencia,	247 t. 5 c.	£1,875
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Magnesia—

Halifax,	8 cks.
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Manure—

Savanna,	8 c. 1 q.	£7
Las Palmas,	17 t. 13 2	44
Teneriffe,	33 5 1	273
St. John's, Nfld.,	4 3	10

Ochre—

Bremen,	15 bgs.
Maranham,	10 brls.
Rotterdam,	44

Oxalic Acid—

Copenhagen,	1 t. 4 c. 3 q.	£31
Antwerp,	2	57
Barcelona,	13	1

Paint—

Benguella,	100 kgs.
Boca,	20 cks.
B. Ayres,	10 55 cks.
Hamburg,	3
Hong Kong,	27 dms.
Maranham,	2
Oporto,	2
Ottawa,	3 2
Para,	20 23
Piræus,	4
Quebec,	5 25
Rosario,	4
St. John's, Nfld.,	56 10
San Francisco,	67 brls.
Santander,	25
Santa Cruz,	175
Vera Cruz,	7
Amsterdam,	12 12 dms.
Calcutta,	47
Cape Haiti,	3
Cape Town,	78 3
Coracao,	20 1
E. London,	3
Frontera, 5 brls.	3 7
Havana,	1
Manilla,	18
Maracaibo,	10
New York,	40 7 7 4 pkgs.
Pernambuco,	30 dms.
Rangoon,	8
Valparaiso,	175 1 1 51 brls.

Painters' Colours—

Alexandria,	65 brls.	10 cks.
Algoa Bay, 3 tcs.	1 kg. 1	75
Baltimore,	75	2 cks.
Bombay,	10 1	1
Boston,	150	1
Busreh,	60	2 12
Capetown, 3	2	2
Ceara,	2	2 12
Frontera,	10	6 1
Lisbon,	10	6 1
Loanda,	2 40	2 15
Malta, 624 bgs.	80 1	
Manaos,	1 2	15
Maracaibo,	80 1	
Matadi, 14 dms.	100	
Matanzas,	25	51
Montreal,	1	2
Mossamedes,	2	
Nassau,	20	2
New York,	500	64
Odessa,	15	
Stockholm,	1	
Valleyfield,	1	
Brazil,	1 bx.	17
Halifax,	6	
Philadelphia,	20 106	

Paraffin Wax

Rio de Janeiro,	4 cks.
Batoum,	10 bgs.
Dedegatch,	10

Phosphate—

Barcelona,	30 t.	£125
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Phosphate of Lime—

New York,	15 c.	£16
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Potassium Bicarbonate—

Leghorn,	1 t. 10 c. 1 q.	£40
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Potassium Bichromate—

Copenhagen,	14 c. 2 q.	£31
Ancona,	8	13

Potassium Oxalate—

Boston,	10 t. 13 c. 3 q.	£275
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Prussiate of Potash—

Barcelona,	5 c.	£23
Genoa,	10	44

Pyrolignite of Iron—

Lisbon,	2 t. 1 c.	£11
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Rosin—

Trieste,	20 brls.
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Salammoniac—

Alexandria,	2 t.	£66
Philadelphia,	16 19 c.	£381
Constantinople,	13 c. 3 q. 5 brls.	43
Trieste,	1 t. 1 c. 1 q.	34
Amsterdam,	11 2	20

Salt—

Accra,	7 t. 10 c.
Akassa,	400
Archangel,	300
Axim,	5 14
Benin,	10
Black Point,	5
Boston,	240
Buguma,	10
Cameroons,	30
C. C. Castle,	23 13
Coquimbo,	100
Halifax,	1,705 11
Hamburg,	100
Miramichi,	285
Mussuco,	25 18

New York,

Norroping,	180
Old Calabar,	270 18
Para,	50
Quebec,	100
Salt Pond,	1,033
San Francisco,	147
Sherbro,	51 15
Sierra Leone,	60
Trangesund,	332 16
Tromsøe,	526
Baltimore,	603 3
Ghent,	75
Loango,	100
Melbourne,	16
Montreal,	25
Pictou, N.S.,	405 10
Rotterdam,	409 10
Savannah,	172
Shanghai,	391
Sydney,	20
Wyburg,	600 10

Saltake—

Philadelphia,	250 t. 19 c.	£591
Lisbon,	10 2	20
Baltimore,	246 4	518
Leghorn,	4	9

Saltpetre—

Halifax,	1 t.	£21
Savanna,	1 16 c. 3 q.	38
Santos,	2 9	55
London, Ont.,	2 10	56

Sheep Dip—

Durban,	2 c.	£5
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Soap—

Algoa Bay,	536 bxs.	15 cks.
Barbadoes,	100	
Bombay,	250	5
Boston,	6 cks.	
Brussels,	387	
Cadix,	10	
Calcutta,		15
Cape Town,	325	100
Colon,		1
Dry Harbour,	100	
E. London,	530	130
Genoa,	110	
Gibraltar,		7
Loanda,	74	
Madeira,	20	
Matadi,	17	
New York,	1,170	55
Pt. Natal,	56	22
Rangoon,	500	10
Rotterdam,		1,300
St. Vincent,	200	
Shanghai,	7,785	6
Valparaiso,	200	30
Vera Cruz,		1
Accra,	170	
Attoaboe,	22	
Axim,	60	
Bayin,	125	
Bermuda,	80	
Bey Beach,	20	
Brass,	100	
B. Ayres,		10
C. C. Castle,	15	
Corunna,		1
Falmouth,	150	
Hong Kong,		14
Lagos,	81	
La Guayra,		1
Las Palmas,	330	
Mauritius,	500	
Melilla,	400	
Para,	500	
Penang,	200	
Quebec,		1
St. John's, Nfld.,		1
Sav. la Mar,	250	
Singapore,	1,300	

Soda Alkali—

Buffalo,	60 brls.
Lisbon,	35

Soda Ash—

Baltimore,	490 cks.	3,260 bgs.
Bombay,	15	
Boston,	517	2,550
Calcutta,	45	30 brls.
Callao,	20	
Campos,	25	
Hio,	100	
Kingsey,		80
Lisbon,	8	
Maranham,	75 10	
New York,	90	3,120
Philadelphia,	954	567
Samarang,	19	
Sherbrooke,		96
Smyrna,	70	
Toronto,	31	
Tripoli,		50
Valencia,	14	
Amsterdam,		240
Ancona,	2	

Antwerp,

B. Ayres,	100
Ghent,	10
Gothenburg,	10
Malta,	3
St. John's, N.B.,	10
Yokohama,	50

Soda Crystals—

Calcutta,	33 kgs.
Halifax,	50
M. Video,	66
Montreal,	200
New York,	140 brls.
St. John's, Nfld.,	25
Valparaiso,	100
Winnipeg,	20
Boston,	280
Smyrna,	

Sodium Arseniate—

Boston,	5 cks.
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Sodium Bicarbonate—

M. Video,	50
Montreal,	200
New York,	200

Sodium Carbonate—

Boston,	107 brls.
London, Ont.,	15 cks.

Sodium Chlorate—

Antwerp,	30 kgs.
Boston,	50
Hamburg,	60

Sodium Nitrate—

New York,	6 cks.
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Sodium Silicate—

Lisbon,	32 cks.
Seville,	50
Corunna,	4 brls.

Stearine—

Barcelona,	3 cks.
Leganes,	2 13 bgs.

Strontia—

Hamburg,	20 t. 6 c.
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Sulphur—

Boston,	350 t. 11 c.
B. Ayres,	3

Superphosphate of Lime

Valencia,	111 t. 7 c.
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Tartaric Acid—

Frontera,	1 c.
Bourgas,	4
Savanna,	1

Turpentine—

Catania,	6 c.
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Varnish—

B. Ayres,	20 cks.
Havana,	1 ck.
Lagos,	5
Algoa Bay,	1
Cape Town,	5
Cincinnati,	2
E. London,	2 12
Leghorn,	5 2

HULL.

Week ending May 20

Soda —	118 dms.
lors,	22 cks.
erg,	34
	332
Ala (otherwise undescribed)	
	100 cks.
	1 cs.
	550
nia,	14 pkgs.
	15 203
urg,	26
P, 449	2
lors,	3
	21
am, 66	10 43 pks.
	88 30
	3 9 5
	7
Sulphate —	
	42 cks.
Sed Oil —	
	199 c.
am,	35
	103
	20
urg,	300
g,	1,486
erg,	50
um,	884
	347
Is (otherwise undescribed)	
	5 cs.
g,	3 1 ck.
	5 2 5 bls.
	3
Oil —	
	10 c.
	96
	80
ia,	739
isand,	607
gen,	27
m,	95
z,	142
ors,	1,514
	8
se,	279
m,	20
r,	20
	87
	16 t.
White —	
	200 bls.
lene —	
	100 bls.
	3 cks.
um,	2
l,	24
Colours —	
	1 cs. 32 cks. 12 dms.
pkgs.	21 25
	4 165
ia,	121 2 752 4 pks.
sand,	2 16 235
gen,	1 22 5 44
m,	6
	14
urg,	1
	15 87 2 pkgs.
rs,	1
rg,	67
e,	32 1 320 pks.
n,	1 26
	1 57
	1 37 10 12 dms.
	90 t.
rs,	27 cks.
m,	10 cks.
en,	1
	14
n,	9
ia,	7 cs.
n,	20
	10
	24 cks.
m,	72 cks.
en,	10
	3
	2 cs. 11
rs,	30
	48

Varnish —	
Antwerp,	1 ck.
Amsterdam,	16 2 cs.
Bombay,	125 dms.
Copenhagen,	4
Drontheim,	1
Danzig,	1 4
Gothenburg,	3
Hamburg,	17 1
Hango,	1
Rotterdam,	7

GLASGOW.

Week ending May 25th.

Acid —		
Rangoon,		£49
Alumina Sulphate —		
Melbourne,	9 t. 2 c.	£29
Ammonium Bichromate —		
Rouen,	15½ c.	£40
Ammonium Chloride —		
Italy,	2 t. 17½ c.	£55
Ammonium Sulphate —		
N. York,	2 t. ¾ c.	£23
Barbadoes,	164 4½	1,843
Jamaica,	10	120
Bleaching Powder —		
Melbourne,	22 t. 4¾ c.	£216
New York,	9	76
Boric Acid —		
Rouen,	6 t. 16¾ c.	£279
Hamburg,	1 ck.	£5. 17s.
Borax —		
Christiania,	7½ c.	£12
Castor Oil —		
Brisbane,		£36
Caustic Soda —		
Melbourne,	25 t. 7 c.	£310
Brisbane,	15 11½	143
Coal Products —		
Cresote Oil		
Boston,	12 t. 5 c.	£54
Christiania,		30 brls. 15
N. York,	21 2	59
Pitch		
Halifax,	15 t.	£23
Italy,	100 4	80
Boston,	68 13	110
Quebec,	133 18	215
Tar		
Philadelphia,	32 t. 11½ c.	69
Gothenburg,	15	30
Hamburg,		35 brls. 14
Christiania,	20	8
Colours —		
Christiania,	1 box.	£5 11s.
Brisbane,		£21
Dyestuffs —		
Aniline		
Calcutta,	100 lbs.	£20
Extract		
Quebec,	2 t. 6½ c	£62
Logwood		
Boston,	2 t. 13 c.	£33
Dyestuffs (otherwise undescribed)		
Quebec,	2 t. 18¾ c.	£26. 17s.
Epsom Salts —		
Rio de Janeiro,	20 t.	£120
Iodine —		
Hamburg,	15 cks.	£5. 400
Linseed Oil —		
Melbourne,	2 t. 12¾ c.	£62
Jamaica,	7 14½	162
Manganese —		
New York,	9 t. 14 c.	£96
Hamburg,	13	140
Manure —		
Brisbane,	2 t. 6¾ c.	£20
Jamaica,	10 1	120
Paint —		
Chili,		58¾ c. £53
St. John's,	6 t. 16	100
Fiume,		36
Calcutta,		100 95
Alexandria,		54 42
Rangoon,	4 16	79
Jamaica,	3 12¾	46
Painters' Colours —		
Calcutta,	13 t. 1½ c.	£216
Melbourne,	3 15	77
Brisbane,	2 5½	51
Paraffin Wax —		
Christiania,	100 c.	£130
Italy,	12 t. 15¾	£325. 17s.
Bilbao,	1	£25
Hamburg,	84 cs.	236

Potassium Bichromate —		
Philadelphia,	138 c.	£259
Italy,	19 t. 7	662
Boston,		140
Rotterdam,	24 cks.	390
Hamburg,	28	366
Potassium Carbonate —		
Philadelphia,	43½ c.	£35
Potassium Prussiate —		
Rouen,	5 t. 7 c.	£320
Pyrolignite of Iron —		
Hamburg,	10 cks.	£18
Salt —		
Brisbane,	409 t. 10 c.	£412
Soap —		
Chili,	1 t. 7½ c.	£47
New York,	7	9
Soda Ash —		
Brisbane,	16 t. 4½ c.	£97. 10s.
New York,	25	112
Sodium Bicarbonate —		
Brisbane,	5 t. 12¾ c.	£37
Sodium Bichromate —		
Italy,	34 t. 13½ c.	£969
Sodium Nitrate —		
Jamaica,	6 t. 3¾ c.	£60
Sodium Sulphate —		
Quebec,	9 t. 1 c.	£27
Sulphuric Acid —		
Rangoon,	32 t. 8 c.	£261
Tallow —		
Rotterdam,	52¾ c.	£60
Zinc White —		
Calcutta,	22½ c.	£22

TYNE.

Week ending May 20th.

Alkali —		
Leghorn,	7 t. 16 c.	
Hamburg,	5 14	
Copenhagen,	5 19	
St. Petersburg,	59 11	
Ammonia Alkali —		
Gothenburg,	20 t. 10 c.	
St. Petersburg,	13 8	
Ammonia Salts		
St. Petersburg,	49 t. 9 c.	
Ammonium Chloride —		
St. Petersburg,	21 t. 4 c.	
Ammonium Sulphate —		
Genoa,	50 t.	
Antimony —		
Antwerp,	2 t.	
Rotterdam,	3	
Copenhagen,	10 c.	
Arsenic —		
Gothenburg,	18 c.	
Barium Binocide —		
Dunkirk,	19 t. 17 c.	
Barytes —		
Rouen,	76 t. 18 c.	
Bleaching Powder —		
Leghorn,	21 t. 12 c.	
Naples,	30 5	
Antwerp,	119 5	
Christiania,	8 18	
Rotterdam,	16 6	
Dunkirk,	9 18	
Gothenburg,	7 14	
Copenhagen,	37 1	
St. Petersburg,	327 19	
Lisbon,	20 4	
Drontheim,	10 15	
Caustic Soda —		
Genoa,	14 t. 10 c.	
Naples,	8 7	
Ghent,	1 8	
Antwerp,	4 18	
Hamburg,	14 15	
Gothenburg,	50 4	
Genoa,	84 13	
St. Petersburg,	275 17	
Rouen,	8 7	
Colours —		
Genoa,	19 c.	
Naples,	2 t. 19	
Antwerp,	10	
Litharge —		
Copenhagen,	1 t. 9 c.	
Lisbon,	2 3	
St. Petersburg,	18 7	
Gothenburg,	1	

Magnesia —		
Genoa,	5 c.	
Naples,	2	
Hamburg,	11	
Genoa,	4 t.	
Rouen,	5	
Paint —		
Antwerp,	6 c.	
Hamburg,	19	
Arendal,	2	
Rotterdam,	1	
Genoa,	1 t. 17	
Bergen,	4 15	
Christiansund,	9	
Gothenburg,	10	
Paraffin Wax —		
St. Petersburg,	2 t. 10 c.	
Phosphorus —		
Genoa,	4 t. 18 c.	
Soap —		
Copenhagen,	5 c.	
Soda —		
Leghorn,	3 t. 8 c.	
Antwerp,	5 17	
Christiania,	10 1	
Rotterdam,	29 19	
Aarhus,	24 17	
Esbjerg,	10	
Gothenburg,	10 11	
Genoa,	10 4	
Lisbon,	5 5	
Drontheim,	5	
St. Petersburg,	19 1	
Soda Ash —		
Leghorn,	5 t. 7 c.	
Aarhus,	17 1	
Lisbon,	10 1	
Gothenburg,	5 9	
St. Petersburg,	50	
Sodium Bicarbonate —		
Genoa,	2 c.	
Sodium Hyposulphite —		
Antwerp,	1 t. 2 c.	
Sodium Silicate —		
Gothenburg,	17 c.	
Sodium Sulphate —		
Moss,	221 t. 11 c.	
Gothenburg,	242 16	
Sulphur —		
Antwerp,	5 t.	
Gothenburg,	60	
Drontheim,	50	
Superphosphate —		
Laurvig,	4 t.	
Aarhus,	19 12 c.	
Tallow —		
Hamburg,	1 t. 2 c.	
White Lead —		
Leghorn,	1 t. 7 c.	
Hamburg,	1 2	
St. Petersburg,	3 9	

GOOLE.

Week ending May 17th.

Alkali —		
Dunkirk,	30 dms.	
Benzol —		
Hamburg,	96 cks.	
Rotterdam,	96	
Chemicals (otherwise undescribed)		
Ghent,	15 cks.	
Coal Products (otherwise undes.)		
Dunkirk,	4 dms.	
Ghent,	2 pkgs.	
Rotterdam,	421 cks.	
Dyestuffs (otherwise undescribed)		
Boulogne,	6 cks.	
Ghent,	2 16 dms.	
Hamburg,	21	
Rotterdam,	3 2 70 bgs.	
Logwood —		
Rotterdam,	101 t.	
Manure —		
Hamburg,	200 bgs.	
Pitch —		
Antwerp,	246 t.	

GRIMSBY.

Week ending May 20th.

Chemicals (otherwise undescribed)		
Malmo,	6 cs.	
Coal Products (otherwise undesc'd.)		
Dieppe,	321 cks. 1 dm.	
Dyestuffs (otherwise undescribed)		
Dieppe,	1 cs. 12 cks	
Rotterdam,	1	

PRICES CURRENT.

WEDNESDAY, MAY 31st, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids :—		£	s.	d.
Acetic, 25 %, and 40 %	per cwt	7/-	&	10/6
„ Glacial	„			50/-
Arsenic S.G., 2000	„	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
„ (Cylinder), 30° Tw.	„	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	„	0	0	1¾
Oxalic	nett	0	0	3
Phosphoric, 1750°	„	0	1	2½
Picric	„	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
„ (monohydrate)	„	5	10	0
„ (Pyrites, 168°)	„	3	0	0
„ „ 150°	„	1	5	0
„ (free from arsenic, 145°)	„	1	6	0
Sulphurous (solution) S.G. 1025	„	3	0	0
Tannic (pure)	per lb.	0	1	2
Tartaric	„	0	0	11¼
Arsenic, white powdered	nett per ton	14	0	0
Alum (loose lump)	„	5	2	6
Alumina Sulphate (pure)	„	5	0	0
Aluminoferic	„	2	10	0
Aluminium	per lb.	0	4	0
Ammonia, Anhydrous	„	0	1	2
„ 880=28°	per lb.	0	0	2½
„ =24°	„	0	0	1¾
„ Carbonate	nett	0	0	3¼
„ Muriate	per ton	20	0	0
„ „ (sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
„ Nitrate	per ton	39	0	0
„ Phosphate	per lb.	0	0	10½
„ Sulphate (grey) London	per ton	12	5	0
„ „ (grey) Hull	„	12	0	0
Aniline Oil (pure)	per lb.	0	0	6¾
Aniline Salt	„	0	0	6¼
Antimony	per ton	45	10	0
„ (tartar emetic)	per lb.	0	1	0
„ (golden sulphide)	„	0	0	10
Barium Chloride	per ton	7	10	0
„ Carbonate (native)	„	3	10	0
„ Sulphate (native levigated)	„	45/-	&	75/-
Bleaching Powder, 35 %	nett	8	0	0
„ Liquor, 7 %	„	3	10	0
Bisulphide of Carbon	„	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	„	17/6	&	35/-
Coal Tar Products and Dyes :—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	„	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	5
„ 50/90	„	0	1	4½
Carbolic Acid (crystallised 40°)	per lb.	0	0	7¼
„ (crude 60°)	per gallon	0	2	5
Creosote (ordinary)	„	0	0	1
„ (filtered for Lucigen light)	„	0	0	1¼
Crude Naphtha 30 % @ 120° C.	„	0	0	7½
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	„	1	5	0
Solvent Naphtha, 90 % at 160°	per gallon	0	0	10
“ Lucigen ” and “ Wells ” Oils	„	0	0	1¼
Copper	per ton	43	5	0
„ Sulphate	„	16	10	0
„ Oxide (copper scales)	„	42	0	0
Glycerine (crude)	„	13	0	0
„ (distilled S.G. 1250°)	„	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
„ Sulphide (antimony slag)	„	2	0	0
Lead (sheet) for cash	„	10	15	0
„ Litharge Flake (ex ship)	„	13	0	0
„ Acetate (white „)	„	25	15	0
„ „ brown „)	„	17	10	0
„ Carbonate (white lead) pure	„	20	0	0
„ Nitrate	„	20	0	0

		£	s.	d.
Lime, Acetate (brown)	.. .. .	per ton	5	17 6
" " (grey)	.. .. .	"	10	15 0
Magnesium (ribbon and wire)	.. .. .	per oz.	0	2 3
" Chloride (ex ship)	.. .. .	per ton	2	7 6
" Carbonate	.. .. .	per cwt.	1	17 6
" Hydrate	.. .. .	per ton.	17	0 0
" Sulphate (Epsom Salts)	.. .. .	per ton	2	19 0
Manganese, Sulphate	.. .. .	"	17	15 0
" Borate	.. .. .	per cwt.	2	12 6
" Ore, 70 %	.. .. .	per ton	4	5 0
Methylated Spirit, 61° O.P.	.. .. .	per gallon	0	2 0
Naphtha (Wood), Solvent	.. .. .	"	0	3 7
" " Miscible, 60° O.P.	.. .. .	"	0	4 6
Oils :—				
Cotton-seed..	.. .. .	per ton	23	0 0
Linseed	.. .. .	"	20	10 0
Lubricating, Scotch, 890°—895°	.. .. .	"	7	5 0
Petroleum, Russian	.. .. .	per gallon	0	0 4½
" " American	.. .. .	"	0	0 5½
Potassium (metal)	.. .. .	per oz.	0	3 7
" Bichromate	.. .. .	per lb.	0	0 4½
" Carbonate, 90% (ex ship)	.. .. .	per ton	17	0 0
" Chlorate	.. .. .	per lb.	0	0 8½
" Cyanide, 98%	.. .. .	"	0	2 0
" Hydrate (Caustic Potash) 80/85 %	.. .. .	per ton	21	10 0
" " (Caustic Potash) 75/80 %	.. .. .	"	20	10 0
" " (Caustic Potash) 70/75 %	.. .. .	"	20	0 0
" Nitrate (refined)	.. .. .	per cwt.	1	2 6
" Permanganate	.. .. .	per cwt.	3	5 0
" Prussiate Yellow	.. .. .	per lb.	0	0 9½
" Sulphate, 90 % (ex ship)	.. .. .	per ton	9	15 0
" Muriate, 80 % (do. )	.. .. .	"	8	0 0
Silver (metal)	.. .. .	per oz.	0	3 1½
" Nitrate	.. .. .	"	0	2 10
Sodium (metal)	.. .. .	per lb.	0	3 4
" Carb. (refined Soda-ash) 48 %	.. .. .	per ton	6	0 0
" " (Caustic Soda-ash) 48 %	.. .. .	"	4	17 6
" " (Carb. Soda-ash) 48%	.. .. .	"	4	15 0
" " (Carb. Soda-ash) 58 %	.. .. .	"	5	0 0
" " (Soda Crystals)	.. .. .	"	3	0 0
" Acetate (ex-ship)	.. .. .	"	16	15 0
" Arseniate, 45 %	.. .. .	"	12	0 0
" Chlorate	.. .. .	per lb.	0	0 10
" Borate (Borax)	.. .. .	net, per ton.	29	0 0
" Bichromate	.. .. .	per lb.	0	0 3½
" Hydrate (77 % Caustic Soda) (f.o.b.)	.. .. .	net pr. ton	11	0 0
" " (74 % Caustic Soda)	.. .. .	"	10	10 0
" " (70 % Caustic Soda)	.. .. .	"	9	10 0
" " (60 % Caustic Soda)	.. .. .	"	8	10 0
" " (60 % Caustic Soda, cream) (f.o.b.)	.. .. .	"	8	5 0
" Bicarbonate	.. .. .	"	6	15 0
" Hyposulphite	.. .. .	"	16	0 0
" Manganate, 30%	.. .. .	"	0	9 0
" Nitrate (95 % ex-ship Liverpool)	.. .. .	per cwt.	27	10 0
" Nitrite, 98 %	.. .. .	per ton	15	0 0
" Phosphate	.. .. .	"	0	0 7½
" Prussiate	.. .. .	per lb.	5	7 6
" Silicate (glass)	.. .. .	per ton	4	5 0
" " (liquid, 100° Tw.)	.. .. .	"	3	5 0
" Stannate, 40 %	.. .. .	per cwt.	1	4 0
" Sulphate (Salt-cake)	.. .. .	per ton.	1	10 0
" " (Glauber's Salts)	.. .. .	"	8	10 0
" Sulphide	.. .. .	"	6	10 0
" Sulphite	.. .. .	"	8	10 0
Strontium Hydrate, 100%	.. .. .	"	0	0 7½
Sulphocyanide Ammonium, 95 %	.. .. .	per lb.	0	0 5
" " Barium, 95 %	.. .. .	"	0	0 3
" " Potassium	.. .. .	"	0	0 7½
Sulphur (Flowers)	.. .. .	per ton.	8	0 0
" (Roll Brimstone)	.. .. .	"	6	10 0
" " Brimstone : Best Quality	.. .. .	"	4	2 6
Superphosphate of Lime (26 %)	.. .. .	"	2	7 6
Tallow	.. .. .	"	32	0 0
Tin (English Ingots)	.. .. .	"	90	10 0
" " Crystals	.. .. .	per lb.	0	0 6½
Zinc (Spelter)	.. .. .	per ton	17	17 6
" " Chloride (solution, 96° Tw.)		"	5	15 0

THE HEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

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316.

SATURDAY, JUNE 10, 1893.

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ADVERTISEMENT.

LONGWOOD GAS COMPANY.

TAR AND LIQUOR.

Directors of the above Company are prepared to receive TENDERS for the purchase of the surplus TAR and AMMONIA LIQUOR made at their Works during the Year commencing July 1st,

to be 5° Twaddell.

ated quantity for disposal is about 950 tons.

ders, endorsed "Tar and Liquor," addressed to the Chairman, Gas Works, Huddersfield, to be sent in not later than Tuesday, June 20th,

By order,

JOHN LOWE MITTON,
Manager and Secretary.

Chemical Works for Sale. Well suited for the manufacture of Fine Chemicals, Washing Powders, Boiler Compositions, and the like, on the canal near Manchester. Present manager would remain with the works. An excellent opportunity for a Chemist with about a thousand pounds to Box D 63, Chemical Trade Journal Office.

Notices.

Communications for the *Chemical Trade Journal* should be sent to the Editors, and Cheques and Post Office Orders made payable to—

S. BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

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Advertisements of Situations Vacant, Premises on Sale or To be Let, and Specific Articles for Sale by Private Contract are charged at the following rates:—

10 Words and under..... 2s. 6d. per insertion
Each additional 10 words 6d. "

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

10 Words and under..... 1s. 6d. per insertion
Each additional 10 words 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements, are charged at the Tariff rates which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should be sent to the office by Wednesday morning at the latest.

TRIBUTE UNTO CÆSAR.

ON Monday last, in the High Court of Justice, the appeal from the decision of the Sunderland magistrates, by the Inland Revenue authorities, appellants, suing for a penalty of £50. from the Sunderland Gas Co., respondents, for using an ammonia still without having previously taken out a licence, was dismissed, with costs against the Crown.

The history of this case is an interesting one, and is as follows:—The Association of Sulphate of Ammonia Manufacturers has for the past few years had many discussions upon the legality, or otherwise, of the tax demanded upon ammonia stills by the Excise authorities; and the Council, believing the impost illegal, advised its members to refuse payment. The Excise authorities thereupon sued the late Mr. Thos. Illingworth, at the Halifax Police Court; but the magistrates dismissed the information, on the ground that an ammonia still was not a still within the meaning of the Act. The Excise authorities appealed against this decision, and the case was set down for hearing at the Royal Courts of Justice in due course. A few days before the hearing Mr. Illingworth died, and the judges decided that, as the case was personal to Mr. Illingworth, there was an end of the matter, so far as he was concerned.

Some time afterwards the tax was demanded from the Sunderland Gas Co., who refused to pay, on the ground that the still was not a still within the meaning of the Act. The Excise again prosecuted, and again the magistrates dismissed the information. The Excise thereupon appealed against the decision, the magistrates having stated the case for the superior court in a very clear manner.

When the appeal came on at the Royal Courts of Justice, several objections were taken by the appellants, to the manner in which the case was stated; and, after a few hours of legal disputing, the "case" was remitted to the justices for re-statement, and the hearing of further evidence if necessary. A second hearing took place before the justices at Sunderland, the Excise sending down counsel in Mr. Alpe, and, as expert witnesses, Mr. Bannister and Mr. Lewin, of Somerset House Laboratory; the defendant Company being represented by Mr. Evans, of Messrs. Godfrey Rhodes and Evans, of Halifax, who had so carefully mastered the details of the case in the first appeal. Mr. George E. Davis, the patentee of the still or apparatus used by the Sunderland Gas Co., was called for the defence, and Mr. Ackroyd, the Public Analyst for Halifax. In the end the case was re-stated for the superior Court, and the appeal from the justices' decision was heard on Monday last, with the result already noted in our introductory remarks.

The question now crops up—Will the Inland Revenue authorities refund the taxes they have hitherto demanded under threats of prosecution, and which have hitherto been paid with demur and under protest? It will be argued on their side, perhaps, that the payers should have refused to pay, and so have brought the matter to a practical issue.

before. But, when the expenses of a lawsuit such as this are borne in mind, it is not in the least surprising that a manufacturer should prefer to pay even what he considers an unjust and illegal impost to the expenses of a suit which, if not carefully and delicately engineered, would be almost sure to fall under the science and practice of a Crown counsel. It would have *paid* any single manufacturer to have gone on paying the tax to his life's end—aye, and his sons after him—rather than to have borne the cost of an appeal to the High Court, even had he been successful. The attitude taken by the Sunderland Gas Co. is much to be commended, and the makers of sulphate all over the Kingdom are much indebted to the Association for having aided in the settlement of a trade grievance, which was a sore point to many, and which probably would not have been thus focussed without its aid.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday last at 44, Mosley-street, Manchester, Mr. Alderman Thompson presiding. The Chief Inspector (Mr. R. A. Tatton), in presenting his report, stated:—

"The extension of time granted to the authorities having expired in the cases of Ashton-under-Lyne, Hurst, Kearsley, Audenshaw, Bacup, Whitworth, Middleton, Stalybridge, Dukinfield, and Ramsbottom, it will be for your Committee to consider whether a further extension of time shall be granted. I beg to report on the following cases:—

The cases of *Ashton, Hurst, Stalybridge, and Dukinfield* may be taken together. Your Committee at their last meeting granted one month's extension of time to these authorities to enable them to come to some agreement for a joint scheme, in accordance with the recommendation of the Parliamentary Committee. No agreement has, I understand, been come to; but this matter will be further dealt with in the report of the Consulting Sub-Committee.

Kearsley Local Board.—Population, 8,000; ratable value, £22,445. The construction of the tanks has made good progress, but the intercepting sewer has not yet been commenced. I would recommend, therefore, only a short extension of time to this authority.

Audenshaw Local Board.—Population, 6,665; ratable value, £33,865. A scheme for the treatment of that portion of the district which flows into the River Tame is now before the Local Government Board. That portion of the district which flows into the Gore Brook is now the subject of investigation.

Bacup Corporation.—Population, 23,498; ratable value, £73,367. No definite conclusion has yet been arrived at between this authority and those of Haslingden and Rawtenstall.

Whitworth Local Board.—Population, 9,800; ratable value, £38,475. The Board has entered into a contract for the purchase of the land required for the proposed sewage works, and have instructed an engineer to prepare plans and specifications.

Middleton Corporation.—Population, 22,152; ratable value, £62,056. Application has been made to the Local Government Board for borrowing powers, but I understand that the plans have not yet been sent in.

Ramsbottom Local Board.—Population, 16,700; ratable value, £68,318. Application has been made for borrowing powers, and plans for the sewage works have been deposited with the Local Government Board."

Letters having also been received complaining of the condition of Woolston Canal, the Glazebrook, and the river at Darcy Lever, the Chief Inspector reported as follows:—"There is only one works on the banks of the Woolston Canal, and that does not drain into it—the effluent, which is inconsiderable, being conveyed under the canal into the river. No sewage matter drains into the canal, it is supplied entirely by river water, and therefore no great improvement in the condition of the canal can be looked for until the water in the river is itself better. It might, however, I think, be somewhat improved if the sluices at the lower end of the canal were from time to time opened, in order to change the water oftener, as the traffic through the canal is now very small. The water in the canal is distinctly worse than that in the river, the result probably of the reduced flow, and also of accumulations of mud in the bottom, which gives off obnoxious gases. The canal belongs now to the Manchester Ship Canal Company, and a suggestion might be made to them to change the water more often than is done at present. A good flood would materially improve the condition of things."

In regard to the condition of the river at Darcy Lever, it was stated in a memorial signed by over 500 inhabitants that there was a great

deal of sickness in the village, and not only sickness, but a very serious annoyance, which made everyone feel sickly and dull. The petition also asked for the removal of the weir, which aerated the water and aggravated the nuisance in the locality. Mr. Tatton reported that—"The pollution of the river is caused partly by untreated sewage being turned into it, and partly by manufacturers' waste waters. The former pollution is, I consider, mainly responsible for the present condition of the river. Sewage is turned in untreated from (1) portions of the Astley Bridge Local Board district, but a Local Government Board enquiry has, I understand, been held with the intention of diverting this sewage to the precipitation works at Astley Bridge, so that it is to be hoped that in a short time this pollution will cease. Parts of the Bolton R. S. A. district—namely, Belmont—where an intercepting sewer has lately been made, but no precipitation works have been constructed. From Bradshaw Brook Watershed, including Edgeworth, Quarlton, Bradshaw, and portions of Brightmet and Tong; also from a sewer at Lostock Junction, which goes untreated into the river. I have complained to the Bolton R. S. A. authorities about this sewer on several occasions since September last, and although the expense of connecting it up to the sewage works will not be great, nothing has been done in the matter. I should have brought this before the next meeting of the Joint Committee in any case, and I think some action should be taken."

Touching the Glaze Brook, the pollution seemed to be chiefly caused by sewage and by bad effluents from sewage works. Sewage was turned untreated into the brook from parts of Aspull, Westhoughton, Hindley, Abram, and Ashton-in-Makerfield, and also from the eastern half of Tyldesley. The sewage farms, from which effluents were turned into the Glaze Brook and its tributaries, were those of Westhoughton, Atherton, Hindley, Leigh, Tyldesley, Ince, Ashton-in-Makerfield, and a small portion of the Barton R.S.A. The farms which, he considered, contributed to the pollution of the streams were Westhoughton (Roger's Farm), Leigh, Tyldesley, and Ashton-in-Makerfield; these were all irrigation farms, and it was the custom at this time of the year to turn the sewage on to a small portion of the farm when the crops could not take it. Irrigation farms, as a rule, were sublet to tenants, whose first object was naturally to make a profit, the treatment of the sewage coming next. Local authorities should keep these farms in their own hands, and should be compelled to treat the sewage properly at all times of the year. The Hindley works consisted of tanks and land for filtration, but the filters were not regularly used, and on the last occasion when the works were visited the effluent was very bad. There was, no doubt, grave cause for complaint, and there was good reason for the residents calling attention to the matter."

Mr. T. W. Killick, in moving the adoption of the report, said the Cheshire C.C. had been asking why the Mersey and Irwell Joint Committee did not make more progress. The work of the Committee was of necessity slow, but progress had been made. In 1892 there were only three authorities with schemes before the Local Government Board, this year there were 25. Again, in 1892 as many as 24 authorities had no scheme in view; but now there were no authorities in that position. The Local Government Board was now responsible for much of the delay, and the Committee could confirm their letter to the Board asking them to use their utmost diligence in completing their inquiries. The recent hot dry weather had afforded them an object lesson, and everybody must be convinced that the time had come when the powers granted by Parliament to the Committee should be used with expedition.

Dr. Hewitt drew attention to the subletting of sewage farms, and stated that those authorities who had the means of treating sewage should be made to do so themselves. He understood that the Salford sewage was not being properly treated, though the Corporation had suitable sewage works. They ought, he thought, to have a monthly report on those authorities who had schemes, in order to see how they were carried out.

Mr. Alderman Walmsley wished Dr. Hewitt had been courteous enough to give him notice of his intention to make his remarks about Salford. His Corporation had been fighting this battle with sewage for a long time. He was glad to find that, judging from Mr. Killick's previous remarks, he had discovered that only slow progress could be made in the matter. Dr. Hewitt's remarks about the Salford effluent would lead the Committee to infer that the sewage of Salford was not being in any way dealt with.

Dr. Hewitt: Not effectually dealt with.

Mr. Alderman Walmsley: What do you mean by effectually dealt with?

Dr. Hewitt: It does not send a satisfactory effluent into the river.

Mr. Alderman Walmsley: Will you find me any authority that is doing that? All the Salford sewage had, during the last twelve months, been treated. At present they were using the lime process, which, he admitted, was not a very satisfactory one. The only occasion when the sewage had not been treated was when owing to an unavoidable accident the pumping engines broke down.

vitt was glad to have elicited an explanation from Mr. , which he heartily accepted. erman Walton Smith thought that from the Chief Inspector's Hindley, action should be taken, and moved a resolution spector should report at the next meeting, and from time to e schemes in operation.

ding the resolution, which was put and carried, Mr. V. K. aid he thought that a copy of any such report should be sent ular districts referred to, so as to obviate the possibility of authority professing ignorance of any adverse criticism on the f its scheme. He strongly condemned the sub-letting of ms, contending that they were not sewage farms at all, but l speculations. The farmers could not be expected to of the sewage than they needed from time to time, and at of the year they did not want any at all. The result was ole of the sewage was put down on a small space reserved pose, where it became a terrible nuisance.

also settled that a summons should be issued against the ral Sanitary Authority for permitting sewage to go untreated well.

ort of the Consulting Sub-Committee, submitted by Mr. ving been adopted, the Joint Committee arrived at the fol- cisions, based on the recommendations contained in the Ashton-under-Lyne, Stalybridge, Dukinfield, and Hurst were ee months to formulate their joint scheme; Kearsley having, een from the Chief Inspector's report, made some progress, another month; Audenshaw three months, as it was pro- unite with Stalybridge; Whitworth and Middleton and ere each given one month's extension, and Ramsbottom ths. As Bacup, Haslingden, and Rawtenstall were still gotiating," it was decided to take action against each under Part II., Section 3, of the Committee's Act.

THE ASHTON-UNDER-LYNE BILL.

nton-under-Lyne Corporation Bill Sub-Committee reported

e day following the last meeting of the Joint Committee the Sanitary Committee resumed the consideration of this Bill, the Stalybridge and Dukinfield Sewerage Bill, which was h it. After hearing evidence for and against both Bills, over two days, the Committee decided that, having very onsidered the whole question, they were of opinion that a ne should be devised which would deal with the sewage of Districts of Ashton, Stalybridge, Dukinfield, Audenshaw, , and with that end in view presumed that the parts of those h dealt with sewage disposal would be withdrawn, it being d that in giving their decision no preference was given to any site. The clauses dealing with the sewage disposal were y struck out of this Bill, and, subsequently, upon the n of Counsel on behalf of your Sub-Committee, Clause 12 ded by reducing the time of completion of the works l by the Act (the making of Sewers) from five years to four l by making the completion of those works compulsory. The nittee consider the result of the proceedings before Parliament to this Bill as satisfactory, and are of opinion that the sewage strict can only be dealt with in the manner suggested by the e.

b-Committee recommend that a sum of £200. be granted on f the expenses incurred in the proceedings before Parliament."

THE STALYBRIDGE SEWERAGE BILL.

alybridge and Dukinfield Sewerage Bill Sub-Committee

this Bill came before the Police and Sanitary Committee on the 2nd of May, and was heard in conjunction with the nder-Lyne Corporation Bill, so far as the latter Bill referred

hearing all the evidence the Chairman, on the 3rd of May, on the Committee, stated that after carefully considering the estion they were of opinion that a Joint Scheme should be h which should deal with the sewage of the whole districts of nder-Lyne, Stalybridge, Audenshaw, and Hurst, and there- cted that the parts of the Bill dealing with sewage should be n. Upon the urgent representations of Counsel for this Bill, r consideration of it was adjourned until the 1st of June, again came before the Committee. The Committee, after r. Pember in support of the amendments proposed by the s, declined to accept them, and the bill was therefore thrown e result of this will be that a Joint Scheme will have to be l on behalf of all the Authorities concerned.

Committee recommend that the sum of £150. be granted on f the costs incurred in opposing this Bill."

REPORT OF THE CHEMICAL SUB-COMMITTEE.

The Chairman of this Committee, Mr. Alderman Walmsley, pre- sented his report, as follows:—The Chemical Sub-Committee beg to report that, since the last meeting of the Joint Committee, they have met the dyers and calico printers and the bleachers—the first on the 8th and the latter on the 15th of May—when the representatives of those firms who were present were informed of the necessity of their taking immediate steps to purify their effluents. The Sub-Committee propose to hold a further meeting on the 12th of June with the paper-makers, who will be asked to meet them and discuss their position. The Sub-Committee have very carefully considered the position of the following firms of tanners and fellmongers who have not yet begun to take satisfactory steps for treating their waste effluents. These firms are:—Thomas Heap & Sons, New Hey, Rochdale; William Clegg, Albert Mill, Milnrow; John Hill & Co., Shawclough Caprod, Rochdale. The Sub-Committee therefore recommend that a written notice be now served on each of these firms, inviting them to appear before the Joint Committee if they so desire to show cause why proceedings should not be taken against them, in accordance with Part III., Section 6 (Sub-Section 2), of "The Mersey and Irwell Joint Com- mittee Act, 1892." Two firms have begun to take steps to treat their waste effluents, but the treatment so far is not effective. Mr. Tatton was instructed to write and tell them, therefore, that in view of the fact that the Joint Committee are taking action against the firms above them, who have not begun to take any steps to treat their effluent, they will be required to have efficient works constructed within a reasonable time. Eleven firms expect to be taken into the local sewers, and the Sub-Committee recommend that Mr. Tatton be instructed to write to them, and inform them they must make definite arrangements with their local authorities for this purpose within one month's time. The Sub-Committee also recommend that Nos. 445 and 456 (numbers being used throughout the report to avoid publishing the names of individual firms) be written to and informed that their waste waters will require treatment. The works of the remaining firms under the above heading either drain into sewers, are shut, or the pollution from them at present is not serious. The Sub-Committee therefore recommend that no action, as yet, be taken against them.

Mr. Councillor Worthington seconded the report, which was adopted.

Mr. Alderman Walmsley then moved the following resolution:— "That the attention of Local Authorities be directed to the considera- tion of the advisability of affording to manufacturers facilities for dis- charging certain portions of their effluents into the public sewers."

Mr. Neville seconded, but suggested a slight modification in the wording of the resolution.—Much discussion ensued, it being apprehended by certain gentlemen that the resolution would be misunder- stood by some authorities.—Eventually the matter was referred to the Chemical Sub-Committee.

A sum of £25. was voted towards furnishing the laboratory for the use of Sir Henry Roscoe.

The Committee then adjourned.

ESTIMATION OF NEUTRAL FAT IN MINERAL OIL.

BY DR. J. KLIMONT.

THE method of Lux for the detection of small quantities of fatty oils in mineral oils does not always give accurate results; and, more- over, is by no means the most convenient of processes. How far the recently-published modification of Ruhemann, in which the application of the method to viscid mineral oils is altered by the employment of a higher temperature, improves matters I am not at present able to say. In the meantime I may be permitted to communicate a method which I have been in the habit of using for the detection of fatty oil in mineral oils, down even to 1 per cent.

15 grms. of the oil (previously extracted with warm water if sulphuric acid were present) are heated for one or two hours in a flask containing about 400 c.c., with 100 c.c. of a 10 per cent. solution of potash (not soda) in alcohol; then allowed to cool, treated with about an equal volume of water, and filtered through a moist filter. If the determina- tion is to be a quantitative one (see below), the flask and filter are well washed out with hot water, the filtrate exactly neutralised with hydro- chloric acid, and, after complete cooling, extracted in a separating funnel with a small amount of petroleum ether. If fat were present the aqueous layer, which now contains it in the form of a soluble potassium soap, will produce a flocculent precipitate of calcium soap on the addition of a solution of calcium chloride, which increases on standing.

The method described can also be made quantitative; but it is then advisable to concentrate the soap solution, and the wash water which is added to it, to about 100 c.c. This is then precipitated with chloride of calcium solution, filtered through a paper dried at 100° C. and weighed,

washed until the disappearance of the reaction for chlorine with the smallest possible amount of cold water, dried at 110° C., and weighed. If the amount of fat is required, the filter paper is incinerated in a crucible and the calcium oxide weighed. To calculate the amount of fat, the weight of lime is subtracted from that of the lime soap. This weight of lime is then multiplied by 0.774, to satisfy the relation of $3 \text{ CaO} : (\text{C}_2\text{H}_5)_2\text{O}_8 = 168 : 130$, and the resulting number added to the amount of fatty anhydride given by the difference between the total weight of lime soap and the lime left on ignition. For instance:—14.2680 grms. of mineral oil were mixed with 0.3315 grm. of castor oil, corresponding to 2.32 per cent.

Amount of lime soap ..	0.3885 grm.
Amount of lime ..	0.0335

Hence the fat present was 0.3808 grm., or 2.66 per cent.

In an industrial product, stated to contain 5 per cent. of olive oil, I found 4.6 per cent. of fat.

The method is not suited for the determination of larger amounts of fat, because the calcium soap easily forms lumps, from which it is difficult to wash out the excess of calcium salts, and is also partially decomposed by water. When, however, the fatty acids—either on account of their small amount or of their greater solubility—cannot be estimated in the direct way, this process may be of value.—*Chem. Zeit.*

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before the Master of the Rolls and Lord Justice A. L. Smith.)

ST. GOBAIN CHANNY AND CIRREY COMPANY v. HOYERMANN'S AGENCY.

This was an appeal by the plaintiffs from an order of the Divisional Court (Mr. Justice Wills and Mr. Justice Charles) affirming a decision of a Judge at Chambers setting aside service of a writ of summons. The plaintiffs were a French firm carrying on business in Paris as chemical manufacturers. The defendant Hoyermann was a German carrying on business in Hanover as a phosphate manufacturer, and having an office or dépôt in London, under the name of Hoyermann's Agency. The action was brought to recover damages for non-delivery of goods, under a contract negotiated in Paris, but signed on the defendant's part in London, by which the defendant undertook to manufacture and deliver to the plaintiffs at Valencia, in Spain, 400 tons of sulphate of ammonia. The writ was served on one Wiskemann, who was the defendant's agent in London and the manager of his office in Mark-lane. The Judge at Chambers and the Divisional Court having ordered service of the writ to be set aside, the plaintiffs appealed to the Court of Appeal. Order 48A, rule 1, says: "Any two or more persons claiming or being liable as co-partners and carrying on business within the jurisdiction may sue or be sued in the name of the respective firms, if any, of which such persons were co-partners at the time of the accruing of the cause of action." Rule 3 says: "Where persons are sued as partners in the name of their firm under Rule 1, the writ shall be served either upon any one or more of the partners or at the principal place, within the jurisdiction, of the business of the partnership, upon any person having at the time of service the control or management of the partnership business there." Rule 11 says: "Any person carrying on business within the jurisdiction in a name of style other than his own name may be sued in such name or style as if it were a firm name."

Mr. Vennell appeared for the plaintiffs; Mr. Scrutton for the defendant.

The Master of the Rolls said that this was a case of a contract between two sets of foreigners. It was not quite clear whether the plaintiffs carried on business in England at all. But it was clearly made out that the defendant carried on business in England. He was a manufacturer of chemicals in Germany, but he manufactured the chemicals for the purpose of selling them, and he had an office in England, at which he made contracts for the sale of them. He had an agent at that office, who made such contracts on his behalf and by his authority. Probably he carried on the best part of his business in England. But the defendant was not only the owner of that business; he was a foreigner resident abroad, not domiciled in England. This action had been brought against him, not in his own name, but in the name in which he carried on business in England. If he had been an English subject, he would have been within Order 48A, Rule 11, being a "person carrying on business within the jurisdiction in a name or style other than his own name," and therefore he might have been sued in such name or style as if it were a firm name. But, even if he

had been an English subject, he would not have been with that order; for he was not a co-partnership, he was not in persons carrying on business. It was clear he was not at all. If he was within any rule of this order, he must be 11. Now, was he within Rule 11? That rule applied to a person carrying on business within the jurisdiction in a name other than his own name." The words in themselves were enough to include a foreigner living abroad, who had never been in England at all, but who was merely carrying on business by in England. But ought the Court so to construe the rule as such a person? If the rule had in its terms expressly included the Court would of course have no option in the matter. The Legislature used words which were capable of either foreigners or being limited to English subjects, in his opinion the Court ought to adopt that construction, which would avoid the of our legislation disregarding principles of international law rule was laid down in "Russell v. Cambefort" (23 Q.B.D.), and was of opinion that the alteration in rule 1 had no effect on the tion of "Russell v. Cambefort" to rule 11. Therefore the case was not within rule 11. It was to be noticed that if the Court's construction which they were asked to put on rule 11, a person carrying on business by himself would be more hardly dealt with than a foreign firm; for a foreign firm could only be made liable to the of their partnership assets, whereas if a single foreigner were to sue there would be no similar limit to his liability. The defendant could not be served or brought within the jurisdiction of the Court under this rule; and the appeal must, therefore, be dismissed.

Lord Justice A. L. Smith delivered judgment to the like effect.

THE HUDDERSFIELD SEWAGE PURIFICATION WORKS.

THESE works, which have been constructed at Deigh Huddersfield, at a cost of from £80,000. to £90,000 opened last week by Mr. W. H. Jessop, chairman of the Committee.

The necessity for some such works had long been felt, and made for an intercepting sewer in the time of Mr. J. H. Abbe surveyor, but on his decease and on the appointment of his Mr. R. S. Dugdale, C.E., the plans were rearranged, and in 1889, fresh plans were laid before the Town Council and in October of the same year the first sod was cut. The work extensive. The site comprises 40 acres, part of which acquired by the Corporation from Sir J. W. Ramsden, Bart. H. F. Beaumont, of Whitley Beaumont, and lies on the north or Leeds side of Huddersfield. The approach to the works road 600 yards long, and along that road the new intercept is laid. Up to now the whole of the sewage of the borough turned into the river at a calculated rate of five million gallons a day, but now the whole of this will pass into the sewage works, where it will be chemically treated, and when it is turned into again at a point on the other side of the works it will be pure. There are 24 large tanks, each capable of holding 1,000,000 gallons, where the work of precipitation is carried on. Each tank is worked independently. When the sewage has passed through various processes it escapes into a channel to the outfall into Colne. The sediment which is left in the tanks is conveyed by separate channels back to the works, where it goes through a process and is dealt with by the destructor which has been erected on the premises, and which is fitted with a number of chambers in which the gases find their way into the atmosphere up a very fine chimney. The works have been carried out under the supervision of Mr. R. S. Dugdale, the borough engineer, and his assistant A. E. Clayton, the resident engineer. The members of the Corporation and invited guests were conveyed in special trams to Deigh after Mr. Dugdale had given a description of the works. Mr. Jessop, at the request of the Mayor (Alderman R. Hirst), turned on the sewage and officially declared the sewage works open. The Corporation have concluded arrangements with the Linthwaite Local Board to take the sewage from Linthwaite township, so as to avoid the necessity for the Board constructing works in the borough of Milnsbridge side of the town.

SMOKE PREVENTION, *a la Paris*—A smoke-map of the town of Huddersfield has been recently prepared by M. Foubert, of the Tour Saint Jacques. The idea is to note the position of the principal factory chimneys, during the day the emission of smoke, then to indicate on the map each chimney, by means of circles of various sizes and tints, of the nuisance.

THE EFFECT OF SUNLIGHT ON BACTERIA.

THE second report to the Water Research Committee of the Royal Society has been drawn up by Professors Percy F. Frankland and H. Marshall Ward. It deals chiefly with the manner in which the vitality of pathogenic bacteria is affected by the presence of non-pathogenic or saprophytic forms. *Bacillus anthracis*, being one of the hardest forms of pathogenic organisms when in the spore condition, was taken as a type. *The British Medical Journal* says, "One of the most interesting results elicited is the effect of sunshine in destroying spores. In the dark, and at moderate temperatures, the spores of anthrax retain their powers of infection for many months in any of the waters experimented with, fresh or sterilised. But in direct sunlight the spores undergo rapid destruction; and it has been definitely proved that this destruction is directly due to the light rays, especially at the blue end of the spectrum, and not either to a rise of temperature or to any action of the solar rays on the medium. Moreover, the experiments prove that the bacteria spores are really killed, and not merely retarded in development. A great difference, however, was observed in the behaviour of spores according as they were introduced into sterilized or into unsterilized water. Infected sterilized waters, after standing for upwards of seven months, were invariably fatal to the animals into which they were inoculated, whether they were preserved in absolute darkness or in diffused daylight. Direct sunshine was, however, rapidly fatal to anthrax spores in these waters within 84 hours. In unsterilized waters, the results were different. The spores degenerated; and, although by special methods they could be revived, they were no longer recognisable by ordinary cultivation methods after the lapse of a few days. To summarise the results, the authors state generally that there is one natural agency at least which destroys anthrax spores in surface water—viz., the action of direct sunshine. Whether or not the activity of water bacteria may be added as a second bactericidal agent, is not definitely determined; but, of the two, sunshine is by far the more rapid and potent. In no case does the evidence support the view that the *bacillus anthracis* can live and multiply like a water bacterium in ordinary waters."

THE PRODUCTION OF CHLORINE FROM MANGANESE DIOXIDE AND NITRIC ACID.

BY G. LUNGE AND C. PRET.

ON the occasion of the last universal exhibition at Paris, one of us drew attention to the fact that the method proposed by Schloesing in the year 1862 for the preparation of chlorine had received new developments on two different sides (*Zeit. für Angew. Chemie* 1889, 699). This method is one of those which aim at obtaining the whole of the chlorine of the hydrochloric acid in the free state, in contradistinction to the old manganese method and also the Weldon process, in which by far the greater part of the chlorine is lost in the form of neutral chlorides and dilute hydrochloric acid. This is not the place to discuss the very numerous and more or less original methods for preparing chlorine which have been proposed during the last few years, not to state an opinion upon the probability of their practical success. We do not even propose to do this for the very process with which we are concerned, although it has been the subject of experiments on the large scale and of several patents (Just, Alsberge, Wischin). We shall limit ourselves to giving an account of a scientific examination of the proposal of Schloesing, as material for chemical technology and as a guide for the practical discoverer. Schloesing's method is one of those which make use of the fact that nitric acid readily gives up a portion of its oxygen in oxidations, the oxide of nitrogen thereby produced, if the reaction has not gone too far, being capable of being reconverted into nitric acid by simple contact with air and water, that is to say, practically without cost. This course of reactions, analogous although by no means identical with that which is the foundation of the sulphuric acid manufacture (in which the reduction and re-oxidation only take place among the lower oxides of nitrogen), has been employed by various inventors (Donald, Davis, Taylor, and others) for the direct oxidation of the hydrogen of hydrochloric acid. Schloesing, however, introduced another intermediate substance, frequently used for different objects, namely, manganese

peroxide. The usual plan has been to treat this body with so much hydrochloric acid as is sufficient to supply hydrogen for both the oxygen atoms of the peroxide, that is, theoretically, with four molecules of acid for one of peroxide, which should yield one-half of the chlorine in the free state, the other half remaining combined with the manganese; practically the reaction between the acid and the peroxide ceases long before this point is reached, so that about a third of the acid remains unaltered, and only about one-third of the chlorine is liberated. Instead of this, Schloesing only employs two molecules of hydrochloric acid for one of manganese dioxide, but then adds at least two molecules of nitric acid. The result of this is that, theoretically, all the chlorine is liberated and all the manganese converted into manganese nitrate. When the latter is heated it is decomposed into MnO_2 and N_2O_4 ; the former naturally serves for a repetition of the process, whilst the latter is converted by air and water back into nitric acid, which then again enters into the reaction. As far as concerns the regeneration of the manganese dioxide, this is effected actually by means of the oxygen of the air, as is the case in the Weldon process, but by the aid of a costly intermediate substance, the recovery of which will probably not reach such a height of perfection that no loss at all will take place. It might be conceivable, although hardly probable, that the loss of nitric acid could be so far reduced as not to exceed in value the cost of the lime and air blast of the Weldon process, counting the labour for each equal and neglecting the fuel necessary for heating the manganese nitrate. Even, however, in the more likely case that the value of the nitric acid lost and the expenses of the fuel amount to more than the cost of regeneration in Weldon's process, Schloesing's method still retains the advantage that this sum may be more than counterbalanced by the possibility of obtaining three times as much chlorine from a given amount of hydrochloric acid, as well as the fact that this gas is obtained nearly free from admixtures, and that there are no waste products or residues to be got rid of. The first objection which might be made against the process, that the two reactions, the liberation of chlorine and the decomposition of the manganese nitrate, might overlap and interfere with one another, has already received the attention of Schloesing, who has sought to show that these two reactions proceed at quite different temperatures, and can be kept apart as two separate phases of the process. He states that 90 to 96 per cent. of the chlorine of the hydrochloric acid is set free; and that 91 per cent. of the nitric acid can be recovered, whilst the regenerated manganese dioxide contains 93.3 per cent. of MnO_2 . He had apparently made but few experiments, and gives no analytical data in support of his statements.

It is remarkable that Schloesing's method has remained for nearly 30 years almost without notice, although one of us, in his "Manual of the Alkali Manufacture" (II, 780) referred to it as worthy of attention. It is not impossible that this may have been directly caused by the absence of a patent, which rendered anyone who worked out the process liable to the danger of expending a large amount of trouble and expense for the benefit of someone else; as a matter of fact, Just and Alsberge, in taking out their recent patents, seem to have quite overlooked Schloesing's process. Since the nitric acid methods for the preparation of chlorine have now come to the front, it seemed worth while to investigate Schloesing's reactions again and to lay the experimental foundations for their application on the large scale. Although individual discoverers have collected a certain amount of material, it is scarcely to be expected that they will impart this to the world as long as it is of value to themselves, and it is therefore the more incumbent on technologists to make an independent investigation of the matter and make it generally known.

Our investigation has extended to the following points:—

1. Can the two stages of the process be actually kept sufficiently distinct by the regulation of temperature?
2. What excess of nitric acid must be employed?
3. Is dilution with water advisable and to what extent?
4. What proportion of the total chlorine can be obtained in the free state?
5. How far can the manganese dioxide be regenerated?
6. Is nitrosyl chloride formed, and if so what becomes of it?
7. How far can the nitric acid be regenerated from the oxides of nitrogen given off after the chlorine?

In connection with the research, although not directly essential, the following question was also examined:

8. Can pure nitrogen peroxide be completely converted into nitric acid by means of air and water?

In order to prevent the disturbing influence of subsidiary reactions we found it necessary to work with pure materials. The acids were easy to obtain in this state; our hydrochloric acid was the chemically pure acid of sp. gr. 1.184 = 36.62% HCl; the nitric acid, also pure, had a sp. gr. of 1.4245 = 69.735% HNO_3 . The manganese dioxide was prepared from the residual liquors of the preparation of chlorine, which were freed from free acid and iron by precipitated chalk and the filtrate precipitated with caustic soda and bleaching powder. The precipitate was filtered off and thoroughly washed on a vacuum filter with dilute hydrochloric acid and then with water. The mass dried

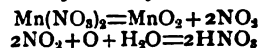
over sulphuric acid contained 91.48%, according to a titration with ferrous sulphate and permanganate, and 8.31% water by direct determination, in all 99.79, and was, therefore, practically pure manganese dioxide, containing half a molecule of water. For the sake of brevity we shall always refer to this material as "artificial manganese." In our experiments we always employed 2 grms. of this substance,

According to the equation—

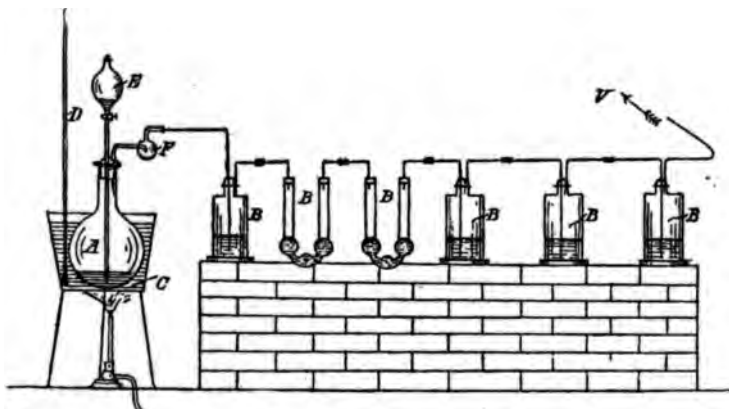
$\text{MnO}_2 + 2\text{HCl} + 2\text{HNO}_3 = \text{Mn}(\text{NO}_3)_2 + 2\text{H}_2\text{O} + \text{Cl}_2$
we require the following amounts by weight:—pure manganese dioxide, 87 parts; pure HCl, 73 parts; pure HNO_3 , 126 parts; or for 2 grms. of our artificial manganese (= 1.83 g. MnO_2); 1.535 g. HCl = 4.19 g. or 3.54 c.c. of our hydrochloric acid; and 2.65 g. HNO_3 = 3.8 g. or 2.66 c.c. of our nitric acid; from these quantities, according to theory, there should be liberated 1.49 g. of chlorine. We always employed exactly the theoretical amount of hydrochloric acid, and only varied the proportions of nitric acid and water.

The apparatus employed was as follows: An evolution flask (A)

chlorine the essentials are:—1. To employ an excess of 7% acid above the theoretical amount; 2. To add 1.7th of the water to the acid; 3. To maintain a temperature of 135°. In this way 98% of the theoretical amount of the total chlorine obtained in the free state. In this respect, therefore, the method must be looked upon as completely successful, if the chlorine, as will shortly appear, did not owe its origin to NO_2 . Moreover, it would of course only be practically useful if the reactions were also found to proceed quantitatively:



It is indifferent whether NO_2 or N_2O_4 is actually given off, as of these is completely converted into nitric acid by air and water is also strictly true of NO , but in this case the conversion means so easy or complete, a fact which has already been ascertained by experience, and also appears from our researches.



closed by a ground glass stopper, into which a tap-funnel (E) and a conducting tube connected with the bulb for catching any spray (F) are fused, both cork and india-rubber being thereby avoided. The flask stands in a glycerine bath, the temperature of which can be read by means of a thermometer (D). The chlorine was absorbed in the U tubes and wash bottles (B) provided with solution of potassium iodide, whilst finally the whole system is connected with a vacuum pump (at V). The manganese is first brought into the flask, the stopper inserted, and then the nitric acid, the hydrochloric acid, and finally the water introduced by the funnel, the water serving to wash the whole of the

We turn next to the regeneration of the manganese dioxide. For this purpose a number of special experiments were made, in which the removal of the residues obtained in the preceding series from the flask could not be effected without loss.

We therefore arranged a set of experiments, in which the regeneration of the manganese dioxide could be carried out in the flask itself after the close of the experiment, which was in fact carried out at a temperature of 250°, so that there were no losses whatever. The determination was done by the well-known method of adding a ferrous sulphate solution, the permanganate

TABLE I.

Experiment.	HCl used.	HNO_3 used.	Water used.	Per cent. yield of Chlorine up to		
				80°	110°	133°
1	Theoretical quantity	Theoretical quantity	$\frac{1}{10}$ vol. of HNO_3 + HCl	72.9	80.5	—
2	"	Theoretical quantity + excess of 25%	$\frac{1}{7}$ vol. of HCl + HNO_3	75.9	82.3	88.1
3	"	Theoretical quantity + excess of 50%	"	76.8	86.9	95.1
4	"	"	"	77.0	86.8	95.0
5	"	Theoretical quantity + excess of 75%	"	78.6	88.3	98.3
6	"	"	"	81.0	90.7	99.0
7	"	"	"	Heated to 135° at once		
8	"	"	"	"	"	98.49
9	"	"	"	"	"	98.6
10	"	"	"	"	"	98.48
11	"	"	"	Heated to 120°		
12	"	"	"	"	"	94.2
13	"	"	"	Heated to 135°		
14	"	"	"	"	"	97.9
				"	"	99.0
				"	"	98.4

hydrochloric acid out of the funnel. The bath is then heated, this operation being carried out in three stages during experiments 1-6; first to 80° for half-an-hour, after which the chlorine is driven out by means of a current of air for one hour. Then, after renewing the potassium iodide in the wash bottles, to 110°, and finally to 135°. In experiments 7-14 only one temperature was employed, this being 135° for Nos. 7, 8, 9, 12, 13, 14, and 120° for Nos. 10 and 11. The following table (I.) shows the result of the experiments, and at once it is clear that in order to obtain the greatest possible amount of

of which is known, allowing it to act on the manganese residue then titrating the residual ferrous salt with permanganate. obtained in four experiments 99.8—99.2—98.79—97.5% of the originally taken, and may therefore say that as regards the regeneration of the manganese dioxide, Schloesing's method is also perfectly satisfactory. The manganese present was actually practically regenerated, although this could not go on to infinity because impure materials are employed.

(To be continued.)

Correspondence.

not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

is a troublesome matter to search back for what you want; but you application form for eightpence at almost any post office, which will be a copy of the original specification (16,636, 1884.) The amendment will have been seen in No. 228 of *Patent Journal*, May 17th, 1893, which will cost you eightpence including postage, by applying to the office, sale branch, 38, Cursitor-street, Chancery-lane, E.C.

I am obliged to you for acquainting us of the matter.

is his country at present that we are aware of.

—Thanks for communication.

have no wish to continue it.

298, you will find it we think.

in 600 to 700 words we should think would be best.

There is a brand of that name. Search your back numbers. You will find you want.

Trade Notes.

—Mr. George G. Blackwell, of Liverpool, has admitted his son, Mr. George G. Blackwell, jun., who has for taken an active part in the business. The style of the firm is now George G. Blackwell, Sons, and Co.

PETROLEUM BARRELING WORKS.—The Standard Oil barreling works at Whiting, Ind., U.S.A., were burnt down considerable damage being done. The total loss is estimated at \$20,000.

FEEDING STUFFS BILL.—Leave was given Mr. H. Gardner (Agriculture), in the House of Commons on Monday, to bring in a bill to amend the law with respect to the sale of agricultural feeding stuffs.

DISPOSAL COMPETITION.—A somewhat novel idea has been put forward by the Monmouth rural sanitary authority. They are now preparing for disposing of the sewage of Monmouth, and are offering premiums of 30 and 20 guineas respectively for the two best submitted. Schemes can be sent in up to July 1st, 1893.

—We regret having to record the death of Mr. J. W. Bailey, a long time connected with Messrs Spooner and Bailey, Chemical Works. The death of the deceased was confirmed by a post-mortem examination showed that death was due to

FINE.—A fine of £500. was imposed by the Belfast Magistrate last week on James Leslie, trading as James Leslie and Co., distillers, for nine offences under the Excise bylaws, the first being for having a pipe leading to his still by means of which spirits could be introduced into the still after it had been sealed by Excise officers.

AT A CHEMICAL WORKS.—A terrible accident occurred last afternoon, last week at Brunner, Mond, and Co.'s works, Sandbach, where a man named John Cotton was belting shaft, which was making thirty-five revolutions per minute. He was carried round and round, each time striking the shaft. Bennett and Latham were telephoned for, but on arrival they found Cotton was dead, and almost every bone in his body was broken. He was twenty-two years of age, and lived at Day Green. He had been married shortly.

STALYBRIDGE SEWAGE SCHEME.—A bill to authorise the construction of Stalybridge to construct sewage works was before the Sanitary Committee of the House of Commons last week. Mr. Stansfeld, the Committee announced that they took in the bill the position they took in regard to the Ashton-under-Lyme sewer, they declined to indicate a preference for a scheme for the sewage disposal works, being of opinion that a scheme for the several districts would be the more desirable.

They had allowed the Ashton Corporation to construct a sewer within the borough, because this would be the best case, but the Stalybridge sewers would conduct the sewage from the particular site already purchased, and the Committee are now sanctioning the scheme to indicate a special preference for the bill was accordingly rejected.

ON BETTER THAN LAW.—In the city of London the arbitration and law seems to be decidedly going against the law. The Arbitration Court has been pretty busy, and the parties who have had their cases settled before it is seen somewhere about a five-pound note. On the other hand it is practically out of work. Recently, two judges of the

High Court travelled to the Guildhall to try cases, but they might have been more usefully employed elsewhere. When Mr. Justice Kennedy took his seat on the bench he was informed that all the cases on his list had been settled out of court, and when he generously offered to take one of the two entered for trial before Mr. Baron Pollock, that judge could not find it in his heart to part with his only city possessions, the more so as the first of them came to nothing. Mr. Justice Kennedy was therefore sent empty away, and Mr. Baron Pollock remained to decide between the two solitary litigants who remained.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar trade is not in a very good position, though how the recent stoppage of one or two carbonising works will affect prices remains a matter of speculation. Benzol is extremely flat and it is quite certain that quoted prices cannot be realized for any quantity, and if forced sales should have to be made prices may again drop considerably. London quotations are 1s. 6d. for 90's and 1s. 5d. for 50/90's, but these may be taken for what they are worth. Anthracene and crude carbolic remain as already quoted, while pitch is 23s. 6d. on west coast and 24s. 6d. at east coast ports.

The sulphate of ammonia market is inclined to be firmer. Makers have very small stocks, and second hand parcels are not plentiful. East coast quotations run between £12. 2s. 6d. and £12. 5s. at Liverpool where sulphate is exceedingly scarce, £12. 7s. 6d. to £12. 10s. is to-day's value. Leith runs from £12. 3s. 9d. to £12. 5s. Beckton requires £12. 12s. 6d. for prompt delivery, and London outside makes are going at £12. 5s. There has been considerable enquiry for forward contracts, and business it is said has taken place at Leith from October and November to March at £11. 17s. 6d. If makers have sold at these prices it would be interesting to know upon what grounds a reduction such as this has been accepted.

We call the attention of our readers to our leader respecting the Still Tax which has been so energetically collected during the past few years by the officers of the Inland Revenue. It is hoped that those who have paid for the past six years will make a claim upon that department for the return of the tax.

MISCELLANEOUS CHEMICAL MARKET.

The market has undergone no change in any of the staple products of the alkali trade, but there is a brisk demand for bleaching powder for export, and the price is firm at £8. 10s. f.o.b., and higher prices according to package. Price on rails makers' works still at £8. nett. Caustic soda is meeting with fair enquiry, and business both for prompt and forward delivery is being done without hesitation on the part of buyers. Current prices are:—F.o.b. Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., 10 ton lots and upwards. Soda ash in all qualities continues to give way slightly in buyers' favour, and business has been reported at extremely low figures for forward contracts in 58% alkali. In chlorates of potash and soda some interest is felt as to price for future deliveries, but meantime makers are firm, and quotations range from 8d. to 10d. per lb. for potash and soda respectively for forward delivery. Acetates of lime, brown and grey, are rather firmer for future delivery, but prices on the spot are unchanged. White acetate of lead steady at £26. c.i.f., grey sugar of lead offering at £21. to £22.; nitrate of lead, £19. For white powdered arsenic the demand is still brisk and price firm at £13. 17s. 6d. to £14. at Garston. Sulphate of copper continues in fair request at £16. 10s. to £16. 15s. f.o.b. Sulphur dull at £4. 2s. 6d. on rails. Borax moves freely at prices ranging from £27. to £29., according to quality. Prussiate of potash in moderate demand at 9½d. delivered. Sulphocyanides in want of improvement. Prices:—Barium, 5d.; ammonium, 7d.

REPORT ON MANURE MATERIAL.

The market has been quiet throughout the week, but without any important alteration in values.

The nearest value of 75/80% Florida phosphate rock is 8½d. c.i.f. to U.K. in cargoes, 1893-1894 shipment. There are sellers of Peace River and South Carolina hot-air-dried river rock at 7d. per unit, but this is probably about ¼d. above what important sales can be made at at present.

Business is doing in River Plate Cargoes of bones for the United States, but we do not hear of any transactions to U.K. For Autumn shipment £4. 5s. is probably the nearest value. Crushed East India

bones on spot are scarce, and £4. 10s. ex store required. For Autumn shipment £4. 3s. 9d. would be business, ex quay Liverpool. Bombay bone meal on spot is somewhat easier, but only retail sales are being made. For Autumn shipment £4. 5s. would be cabled out, ex quay Liverpool, London or Glasgow.

The nitrate of soda market is quiet at 8s. 6d. per cwt. for inferior quality, up to 9s. 1½d. for refined on spot. Due cargoes are worth 8s. 4½d. to 8s. 6d. per cwt., according to size and test.

Sales of River Plate dried blood have been made at 9s. per unit of ammonia, ex quay Liverpool. There are sellers of home-prepared at 9s. 6d. to 10s. 6d. per unit, according to quality and relation of the works to shipping port.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The threatened strike here amongst the oilmillers has not assumed very large proportions, being at present confined to one firm. Business generally is without life, and nothing of any moment is doing. The export for the week of both linseed and cotton oils is considerably below the average, which is, perhaps, in some measure to be attributed to the lack of confidence generated during the strike. Linseed oil is about 5s. per ton lower on the spot, and closes very steady. There has been a good enquiry for September-December oil, at 18s. 6d. Refined cotton oil has improved about 10s. per ton, closing steady thereat, with buyers at this rate for June/August. The quotations are:—Linseed oil, steady, at 18s. 9d. naked spot; also the same for June/August. For September/December 18s. 3d. has been paid. Cotton oil, 20s. 6d. naked on the spot; also the same June-August. New oil, November-April, about 18s. 6d. Rape oil (refined), very little doing, and quotations are a little easier, 26s. 3d., casks free. Turpentine, 23s. 3d. Olive oil, very little doing, and a slow sale, £35. to £40. per tun. Petroleum jelly, orange and red sorts, 28s. per cwt. in bulk.

CAKES.—A fair demand is experienced for the time of the year, but quotations naturally have a tendency downward. Linseed and cotton cakes are about 5s. per ton lower. Linseed cakes, 95% pure, £8. 15s.; ordinary, £7. 5s.; Russians, £8. 10s. to £8. 15s.; Polish, £8. 15s. Cotton cakes, after somewhat irregular selling, mostly re-sales, the market is firmer: Best makes, £5.; secondary, £4. 17s. 6d., with a fair enquiry. Black Sea rape cakes, for manure purposes, about £3. 10s. per ton.

PAINTS.—Business in these articles is made up principally of country orders, and makers of these goods are much interested in the finances of the various Colonies. Prices are:—Mixed paints, in tins of 1lb. to 14lb., 28s. to 30s. per cwt.; enamels, according to brand, 4s. 9d. to 5s. per dozen (6d. size); fine linseed oil putty, £6. per ton; Venetian red, £6. to £10. per ton; oxide of iron, dry, £9. to £18. per ton.

THE LIVERPOOL MINERAL MARKET.

The market is firm, and the outlook satisfactory. Manganese: demand much better, with improved prices. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) is very quiet; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Shipments are very large, and likely to increase; lump 20s., seconds 16s., thirds 12s. French chalk: The demand for "Angel White" is still very large, and much better prices are ruling. Barytes: Carbonate scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and mangani-ferous are quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firm. Chrome ore: The demand much exceeds the supply, and, in consequence of the Australian crisis, the prices are advancing rapidly, and prospects of shipments are no better. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese improving. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron); finest quality 25s. to 30s.

LIVERPOOL OIL AND COLOUR MARK

WEDN

OILS.—Palm oil has experienced a decided decline. D week business has been very dull, but yesterday late on, sales were made at £23. 10s. per ton transit. The market is now quieter. Olive has been in fair request and the sales though small have been fairly good, prices varying according to quality from £43. per tun. Linseed shows signs of improvement and is firm to 21s. per cwt. for Liverpool makes in export casks. Rape and unaltered. Cottonseed practically remains stationary. It shows slight signs of advancing during the week but quickly reverts to its former position, viz., 22s. 6d. to 24s. per cwt. for Liverpool. Castor oil keeps steady with sellers at 23½d. to 24½d. according to position and quantity for good seconds Calcutta, while first press French is quiet at 23½d. to 24½d. per lb. Tallow is dull and continues depressed. Resin, common, is dull at 3s. 7½d. per cwt. in conjunction with the lower grades, medium being quoted 4s. 3d. per cwt.; higher grades maintain their firmer position. Spirit turpentine seem very unsettled and prices have been subject to vacillation. To-day's value is 23s. 6d. per cwt. Petroleum is in demand, prices for both American and Russian refined being un-

COLOURS unchanged and steady. Ochres: Oxfordshire, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; Welsh, best, 60s.; second, 50s., and common, 40s. Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; Marseilles, 60s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. lead, red lead, and oxide of zinc unchanged. Venetian red, £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; black Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Co £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet. Scotch warrants at 40s. 11½d. cash. Middlesbrough 34s. 3d. cash, and hematite 6d. cash. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s at £43. 10s. to £43. 17s. 6d. cash, and £44. to £44. 10s. months. Tin firm: Straits closed at £86. 10s. to £86. 15s. and £85. 10s. to £85. 17s. 6d. three months. Australian £5. cash. English ingots, £90. Lead, easy: Spanish, £9. 3s. 9d. 5s. English, £9. 7s. 6d. to £10. Silesian spelter: Ordinary, 15s. to £17. 17s. 6d. Nickel, 1s. 8½d. per lb. Antimony 10s. to £39. Quicksilver: First hands, and second hands, £8 Copper shares quiet: Cape, 1½ to 1¾. Copiapo, 2 to 2½. L 2½ to 3¼. Mason and Barry, 1¾ to 2. Rio Tinto, 15 to Tharsis, 4½ to 4¾; Namaqua, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Continued improvement marks the Exchange to-day, partly the result of the firmer Cleveland. Lincoln pig iron is quoted at 43s. to 44s. P.G. at 45s. 6d. Prices are believed to have touched the bottom, and summer are more inclined to order forward. Derbyshire is 39s. 40s. 6d.; Westbury brand 40s. Better finished iron orders hand from India, the Cape, and South America. Australian and prices unchanged.

GLASGOW, WEDNESDAY.—Market quiet, with small business. Scotch done at 41s. 0½d. and 41s. cash, closing with buyers at 11½d. cash and 41s. 2d. one month; sellers ask 41s. cash. Land closes with buyers at 34s. 3d. cash; sellers ask 34s. Cumberland hematite closes with buyers at 44s. 6d. cash, 2d. 8d. one month, sellers 1d. dearer. Middlesbrough hematite 42s. 6½d. cash, closing with buyers at 42s. 6d. cash; sellers 42s. 6½d.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUES

Sulphate of ammonia has held its recovery firmly so far, and buyers admit that it is very nearly impossible to find a prompt sale at £12. 5s. Some of the makers are edging up to the mark of £12. but the true mark at present certainly falls short of that. Business is perhaps not quite so strong as a week ago, and for a delivery the best price now is £11. 17s. 6d. With the exception of bleaching powder, which keeps very active, and with late value held, standard chemicals are very dull, and the nominal quotations with difficulty retained. There have been some rumours giving way, but if business has been done at a fall, particulars transpired. The higher value of sulphate of copper is confirmed.

the makers of paraffin oils and solid paraffins point to of the dullness, but there are as yet no further drops in tions, whatever may be doing on the quiet. Young's and Mineral Oil Company have declared results of year's, in brief, are nothing for the shareholders, and a small to the credit side of next year's making up. Not one dies this year pays any dividend—a total blank, which red before.

current are :—Soda crystals, £2. 10s. nett Tyne; s. 6d. nett Tyne; refined alkali, £6. 10s. nett Tyne; £5. 5s., nett Glasgow; caustic soda, white, 76°, £10. £9. 10s., 60/62°, £8. 10s., and cream, 60/62°, £8. erpool; bleaching powder, £8. 5s. nett Tyne; saltcake, English refined, £30., and boracic acid, £37. nett bonate of soda, 5 cwt. casks, £6. 10s., and 1 cwt. casks, 2½%, Liverpool; bichromate of potash, 4¼d. nett, for glish deliveries (for export 4¼d. nett f.o.b. Glasgow); soda, 3¾d., nett, for Scotch and English deliveries l. nett f.o.b. Glasgow); chlorate of potash, 8¾d., less nitrate of soda, 9s.; sulphate of ammonia, £12. 5s. to f.o.b. Leith; sal ammoniac, first and second white, less 2½%, any port; sulphate of copper, £17. 5s., ol; paraffin scale, hard and soft, 1¾d. per lb.; paraffin -refined, 2¾d.; paraffin spirit (naphtha) 4d. a gallon; ning) 4¼d. to 5¼d. at works, according to quality, ers (English sales about ½d. to 1d. lower); ditto 15°, £3. 15s. to £4.; 885°, £4. 5s. to £5. 15s., and to £6. 10s. Week's imports of raw sugar at Greenock 7s.

TYNE CHEMICAL REPORT.

TUESDAY.

ow very slight alteration in prices. Soda crystals ; less at some other ports. Bleaching powder firm at . Caustic soda, £10. 15s. to £11. per ton, with a mand. Sulphur, £4. to £4. 2s. 6d. per ton. owder, softs, £8. 5s. per ton nett; hards, £8. 10s. ic soda, 76/77°, £11. per ton, 70%, £9. 10s. per sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per , £3. 15s. per ton; white alkali, 48%, £4. 15s. per er ton, 52%, £5. 5s. per ton; hyposulphite of soda, in £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. weight, in 2 cwt. bags, £2. 10s. per ton nett e of potash, 8¾d. per lb. less 6%; pearl hardening, ; pure white sulphate of alumina, £4. 2s. 6d. per ton; 10s. per ton; chloride of barium, £7. 10s. per ton; umina, £28. 15s. per ton nett; aluminate of soda, on nett; in 5 ton lots, £28. 10s.; hydrate of barium, tl. a salt.—Unaltered, at 9s. 1d. per ton f.o.b. Tees. is rather easier in some branches, the production he demand for gas and household coal at its lowest. ian steam, 8s. 7½d. per ton f.o.b.; second class steam, ls, dull for unscreened qualities, 6s.; gas coals in poor l 7s.; coke fairly steady, 14s.

THE COPPER MARKET.

ngton and Co., in the fortnightly report dated Liver- state :— Charters for the past fortnight are cabled as rst 650 tons for the previous fortnight, making 1,750 nth. The total since 31st December is 8,000 tons. ear the quantity was 9,350 tons. Exchange 14½d. port about 5,500 tons of G.m.b.'s and G.o.b.'s have Market opened at £43. 1s. 3d. cash and £43. 13s. hs, and advanced till £43. 15s. and £44. 7s. 6d. ; touched on the 23rd ult., values then gave way, own to £42. 15s. and £43. 5s. by the 29th; after an irregular improvement, and we close to-day with 5s. cash and £43. 15s. three months. ales of Furnace Material we mention a re-sale of 300 ferous Anaconda Matte, and we understand this re-shipped from the Continent. We have not had rt any sales of Anaconda Matte since our Copper on 2nd Sept., 1892, when we reported 1,300 tons, for forward delivery.

The total stocks in Liverpool, Swansea, London, and Havre show an increase of 62 tons for the fortnight, but with a decrease of 1,605 tons for the previous fortnight, makes a total decrease of 1,543 tons for the month. The stocks include about 1,500 tons of copper sold, but not yet delivered to smelters. The visible supply shows a decrease of 298 tons for the fortnight, which with a decrease of 1,797 tons for the previous fortnight, makes a total decrease of 2,095 tons for the month. The total deliveries for the fortnight are 4,849 tons, which with 4,591 tons for the previous fortnight, makes a total of 9,440 tons for the month. The present stock of English G.m.b.'s in warehouse, Liver- pool and Swansea, is 169 tons, against 244 tons on the 16th ult. The delivery in Liverpool and Swansea was 75 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts are quiet. Quotations being :—Tough cake £46. to £46. 10s.; best select, £47. 10s. to £48.; Indian sheets, £51. 10s.; strong sheets, £54.; and yellow metal sheets, 4½d. per lb.

The sales of furnace material comprise—at Liverpool: 750 tons Chili ore, at 8s. 9d.; 45 tons Cueva de la Mora precipitate, at 9s. 1½d.; 400 tons Columbian matte, at 9s. 1½d.; 900 tons Argentiferous montana matte, 200 tons Argentiferous leady matte, 300 tons Argentiferous Anaconda matte, and 105 tons Argentiferous Chili regulus, all on private terms; and 7 tons Aljustrel precipitate, at 8s. 10½d. per unit. At Swansea: 1,157 tons Quebrada regulus, and 653 tons Quebrada ore (spot) and 2,000 tons ore, to arrive, all sold on the basis of best selected.

New Companies.

Liverpool Boiler Fluid Detergent and Disinfectant Co., Ltd.— CAPITAL £75,000. in shares of £1. each. This company has been formed to take over the business now carried on by Frank Glenfield, in Liverpool and London, as manufacturer of fluid compositions for preventing boiler incrustation, cleansing fluids and detergents. The subscribers to the memorandum of association are :—G. B. Chace, 5, Copthall Buildings, London, E.C., gentleman; G. J. Leslie, Glenfield, Longton Avenue, Sydenham, G. H. Skelsey, Cook-street, Liverpool, merchant; H. J. Robinson, Woolton, Liverpool, sugar refiner; A. McCulloch, 18, Dale-street, Liverpool, broker; F. North, 1, Water-street, Liverpool, solicitor; Thomas Gee, 20, North John-street, Liver- pool, solicitor.

W. Meadowcroft & Sons, Limited.—CAPITAL £30,000. in shares of £1. each. This company has been formed to carry on the business of manufacturers of fruit essences, flavours, &c., and chemicals. The subscribers to the memorandum of association are :—W. Farmworth, 49, King William-street, Blackburn, chemist; J. W. Sharples, 19, Walter-street, Blackburn, mineral merchant; J. H. Stones, 10, Rich- mond Terrace, Blackburn, architect; J. H. Pearson, Blackburn, manager; William Meadowcroft, Hawkshaw Bank, Four Lane Ends, Blackburn, fruit essence manufacturer; J. Meadowcroft, 33, Shear Row, Blackburn, fruit essence manufacturer; A. R. Gradwell, 10, Richmond Terrace, Blackburn, architect.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Rapid Bleaching Materials. M. Williams. 10,154. May 23.
Improved Sulphate of Ammonia Still. G. Pettigrew. 10,171. May 23.
Improved Manure. J. Schmidt. 10,189. May 23.
Preparation of Gypsum for use as Plaster. P. M. Justice. 10,208. May 23.
Improvements in the Manufacture of Paint. J. C. Müller. 10,303. May 24.
Obtaining Dyestuffs from Hydrocarbons by Nitration. H. A. Frasch. 10,320. May 25.
Sulpho Acid and Process for Producing Same. H. A. Frasch. 10,321. May 25.
Manufacturing Sulpho Acid from Petroleum. H. A. Frasch. 10,322. May 25.
Obtaining Dyestuffs from Natural Mineral Oils by Sulphonation. H. A. Frasch. 10,323. May 25.
Separating Salts of Potash and Soda, particularly Common Salt, from Solutions of Magnesium Chloride. T. H. Bell. 10,341. May 25.
Improvements in the Manufacture of Slag Wool. T. E. Halford. 10,358. May 25.
Centrifugal Machines. S. Barrett. 10,431. May 27.
Artificial Fuel. S. W. Dew. 10,446. May 27.
Improved Treatment of Sewage and other Foul Waters. A. P. Ho e. 10,458. May 27.

Improvements in Pickling Iron and Steel Plates prior to Galvanizing.
H. J. Kirkman. 10,463. May 27.

GERMAN PATENTS fortnight ending JUNE 10, 1893.

Specially abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 12 B. 14,047. Production of β Bromo μ oxybenzo Acid. H. Baum, Frankfurt-a-Maine.
12 F. 6,428. Production of Amidoantipyrine and Acetamidoantipyrine. Meister Lucius and Brünning, Höchst-a-M.
22 B. 14,155. Production of α_1 -Amido- α_3 -Naphthol- β_4 Sulpho Acid. Bad. Anal-u-Soda Fab, Ludwigshafen a/ Rh.
22 F. 4,608. Production of $\alpha_1\alpha_4$ Dioxynaphthaline- α -Monosulpho Acid. F. Bayer & Co., Elberfeld.
75 S. 7,217. Apparatus for Evaporating and Concentrating Sulphuric Acid. (Addition to patent 67,863.) G. Siebert, Hanau a/ M.
12 E. 3,501. Acid Derivatives of Isoeugenols. Dr. A. Einhorn, München.
12 G. 6,097. Production of Ichthyolsulphonic Acid. Gewerkschaft Messel auf Grubel Messel, Darmstadt.

Gazette Notices.

PARTNERSHIP DISSOLVED.

HICKS AND WEATHERBURN, Vicar-lane, Leeds, oil and colour merchants.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

BURBIE James, late of Litherland, Lancashire, now of Liverpool, Burbie Liverpool and Spencer, Edward, Levenshulme, Lancashire, and trad as Edward Spencer and Co., at the Openshaw Bridge Oil Works, 0 Lancashire, oil merchant and refiner (carrying on business in co-part Burbie Bros, and as E. Spencer and Co., late trading as Burbie & Edward Middleton and Co.,) Phoenix Lard Works, Liverpool, the Birkenhead, and Springfield-lane Lard Works, Salford, oleo manufact lard refiners.

HOULDSWORTH, D. AND SON, Heckmondwike, Yorkshire, dry soap manuf

Adjudications.

MERRETT FANNY, Southsea, oil and colour merchant and chemist.
PAWSON JOHN, Batley, Yorkshire, oil extractor.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 27th.

Acetic Acid—			
Holland,	120 pkgs.	Beresford & Co.	
"	120	A. & M. Zimmermann	
Alum—			
Holland,	12 pkgs.	Oblenschlager Bros	
Aluminium—			
France,	10 c.	Major & Field	
Ammonia Salts—			
France,	8 pkgs.	Hernu, Peron & Co.	
Antimony—			
Spain,	16 t.	J. Bamber	
France,	50	Smith, Sundius & Co.	
"	50	Flagecollet & Co.	
N. Zealand,	6	James & Snakespear	
Sydney,	22	Vivian, Younger & Co.	
China,	81	L. & I. D. Jt. Co.	
Asbestos—			
U. States,	£600	Beck & Pollitzer	
"	400	W. Balchin	
"	220	Furness, Withy & Co.	
Barytes—			
Germany,	19 cks.	S. H. Willoughby	
Belgium,	57	Leach & Co.	
"	95	J. L. Lyon & Co.	
"	46	Z. Cartwright & Co.	
"	77	41 pkgs. W. Harrison & Co.	
Holland,	44	"	
"	115	Magee, Taylor & Co.	
Bromine—			
Germany,	10 pkgs.	A. & M. Zimmermann	
Caoutchouc—			
Madagascar,	49 c.	Hannumond & Co.	
Aden,	2	Lewis & Peat	
France,	4	Flagecollet & Co.	
Germany,	100	Wallace Bros.	
E. Indies,	25	A. Lawrie & Co.	
U. States,	496	Williams, Torrey & Co., Ltd	
"	166	Mildred, Goyeneche & Co.	
Rangoon,	572	L. & I. D. Jt. Co.	
E. Indies,	115	Ross & Deering	
"	28	T. Merry & Son	
"	82	L. & I. D. Jt. Co.	
"	93	Huttenbach & Co.	
"	30	E. Barber & Co.	
Zanzibar,	31	L. & I. D. Jt. Co.	
U. States,	216	Williams, Torrey & Co., Ltd.	
Carbolic Acid—			
Holland,	25 pkgs.	G. Rahn & Co.	
"	25	Volcanic Aeration Co.	
Carbonic Acid Gas—			
Holland,	25 pkgs.	T. Palmer	
Castor Oil—			
E. Indies,	65 pkgs 89 cks.	Ross & Deering	
"	195 ca.	L. & I. D. Jt. Co.	
Italy,	10	Hodgkinson & Co.	
E. Indies,	82 cks.	Cayzer, Irvine & Co.	
Belgium,	30 brls.	Burrell & Co.	
Caustic Potash—			
France,	50 c.	Petri Bros.	
"	11 dms.	Spies, Bros. & Co.	
Chemicals (otherwise undescribed)			
Holland,	14 pkgs. £5	Phillipps & Graves	
Germany,	44	A. & M. Zimmermann	
"	30	T. H. Lee	
"	7	Phillipps & Graves	
Citrate of Lime—			
Italy,	10 pkgs.	Fellows, Morton & Co.	
Cream of Tartar—			
France,	27 pkgs.	B. & F. Wf. Co., Ltd.	
"	10	M. Ashby, Ltd.	
"	36	W. C. Bacon & Co.	
Italy,	4	Galbraith, Pembroke & Co.	
Holland,	8	Middleton & Co.	
France,	2	G. Ward & Sons	
"	6	E. W. Carling & Co.	
"	14	R. Morrison & Co.	
Spain,	22	W. C. Bacon & Co.	
Dextrine—			
Germany,	100 pkgs.	Hernu, Peron & Co.	
Dyestuffs—			
Annatto			
Denmark,	30 pkgs.	D. & J. Fowler	
Anthracene			
Holland,	130 pkgs.	Burt, Boulton & Co.	
Argols			
Cape,	50 pkgs.	Brown & Elmslie	
Italy,	342	Thames S. T. & L. Co., Ltd.	
Cochineal			
Canaries,	3 pkgs.	Sperling & Williams	
"	31	Marshall & French	
Cutch			
E. Indies,	200 pkgs.	Union L. Co., Ltd.	
Rangoon,	100	A. Howden & Co.	
"	296	W. H. Cole & Co.	
"	5	Bailey & Leatham	
"	250	McDougall & Bouthron	
"	50	Anderson, Weber & Smith	
Divi Divi			
E. Indies,	300 pkgs.	Culverwell, Brooks & Co.	
Extracts			
France,	40 pkgs.	T. H. Lee	
"	157	Prop. Chmblin's Wf.	
"	565	L. J. Levinstein & Sons	
Denmark,	4 pkgs.	Bailey & Leatham	
"	50	D. & J. Fowler	
Fustic			
Jamaica,	85 t.	Anderson, Weber & Smith	
Gambier			
E. Indies,	210 pkgs.	J. Greig	
"	649	L. & I. D. Jt. Co.	
Indigo			
E. Indies,	96 chts.	R. Von Glehn & Sons	
"	187	L. & I. D. Jt. Co.	
"	5	Benecke, Souchay & Co.	
"	7	Arbuthnot, Latham & Co.	
Ceylon,	166	Tozer, Hewitt & Co.	
Logwood			
B. W. I.,	8 t.	Dennery & Co.	
"	9	Gillespie, Brx. & Co.	
"	25	Benekendorff & Co.	
"	12	Anderson, Anderson & Co.	
Jamaica,	8	Anderson, Weber & Smith	
Myrabolams			
E. Indies,	206 pkgs.	Anderson, Weber & Smith	
Orchella			
E. Indies,	156 pkgs.	Lewis & Peat	
Sumac			
Cyprus,	185 pkgs.	Cyprus Co., Ltd.	
Italy,	500	J. Graves	
"	100	Sollas & Sons	
"	600	Galbraith, Pembroke & Co.	
"	150	C. G. Fosbrooke	
Tanner's Bark			
New Zealand,	20 t.	Von der Meden & Co.	
Adelaide,	92	Baxter & House	
Melbourne,	62	"	
Turmeric			
E. Indies,	50 pkgs	Clarke & Smith	
"	201	W. H. Sampson	
"	201	L. & I. D. Jt. Co.	
"	60	S. Figgis & Co.	
"	300	Anderson, Weber & Smith	
"	250	Union L. Co., Ltd.	
"	250	Kalli Bros.	
Cochin,	40	Butler's Wf., Ltd.	

Valonia			
A. Turkey,	9 c.		
Dyestuffs (otherwise uns)			
Jamaica,	38 pkgs.	Park, J	
U. States,	3	W. I	
Glucose—			
U. States,	1,000 pkgs.	1,000 c. l	
"	750	750	C. l
"	1,125	3,966	R. I
"	1,400	1,400	Tag
"	1,250	1,250	Boake
"	250	250	Ohle
"	500	500	L. &
"	100	534	W.
"	442	2,535	Somel
"	100	606	J. K.
"	100	200	H.
"	350	351	Devitt
Germany,	300	300	E
"	20	164	Cham
Guanos			
Germany,	161 t.	Anglo-Cont	
Iron Perochloride—			
Holland,	6 pkgs.	R. Ma	
Lead Acetate—			
Germany,	16 pkgs	F.	
Litharge—			
Germany,	20 cks.	J.	
Magnesia—			
Holland,	5 pkgs.	Beresfo	
Manganese—			
Holland,	2 cks.	R. I	
Victoria,	46 t.	Hickie, B	
Manure—			
France,	60 t.	J. Burne	
N. Russia,	13	A. Ham	
"	13	Co-op. l	
Sydney,	3	Ande	
Mica—			
Germany,	£24	I	
France,	10	B. & F. Wf. I	
E. Indies,	115	W. M. Smit	
Germany,	90	"	

Naphthol — Germany, 3 pkgs. Drolenvaux & Bremner		Tallow — New Zealand, 183 cks. Flack, Chandler & Co.		Cream of Tartar — Barcelona, 5 cks. 5 hds. Sachse & Klemm		Size — Rotterdam, 2 cs.	
Ochre — France, 78 brls. 52 cks. W. Harrison & Co.		" 285 N. Z. L. & M. A. Co.		" 2 hds.		Soap — New York, 167 brls. 8 cs. Burroughs, Welcome & Co.	
Holland, 14 cs. Phillips & Graves		" 103 Low, Sons & Bedford		Dyestuffs — Annatto		Soda — In transit, 10 brls.	
" 6 cks. Union Lightge. Co., Ltd.		" 26 H. Lambert		Bordeaux, 15 cs.		Stearine — Antwerp, 29 bgs.	
Painters' Colours — Germany, 48 pkgs. 7 cks. L. & I.		" 88 R. Brooks & Co.		Havre, 100 bgs. Cunard S. S. Co. Ltd.		Sulphur — Huelva, 1,500 t. Matheson & Co.	
" 25 D. Jt. Co.		" 32 Culverwell, Brooks & Co.		Hamburg, 224		Tallow — New York, 250 hds. 100 tcs.	
" 16 Flageolet & Co.		" 17 Hoare, Wilson & Co.		Fiume, 103 brls. Oak Extract Co.		Boston, 33	
Cyprus, 100 t. Cyprus Co., Ltd.		" 18 Hicks, Nash & Co.		Halifax, 80 cks. Boucher, Bacon & Co.		San Francisco, 300 brls.	
E. Indies, 3 pkgs. L. & I. D. Jt. Co.		" 39 J. Morrison & Co.		Baltimore, 21 brls. R. Schloesser		Philadelphia, 100 200 tcs.	
France, 7 F. Corfield Smith		Sydney, 34 Anning & Cobb		New York, 25		Tartar — Bordeaux, 17 cks.	
Belgium, 46 T. Palmer		Adelaide, 14 Sollas & Sons		Antwerp, 8 cs. J. T. Fletcher & Co.		Tinical — Calcutta, 110 bgs.	
France, 10 Flageolet & Co.		Sydney, 53 F. Stahlschmidt & Co.		Ghent, 30 cks.		Tin Oxalate — Rotterdam, 6 cks.	
Germany, 3 Hernu, Peron & Co.		" 90 Phillips & Graves		Vera Cruz, 2,179 blks. Ledward, Bibby & Co.		Ultramarine — Bremerhaven, 2 cks.	
Belgium, 2 Union Lightge. Co., Ltd.		" 252 Beresford & Co.		Tampico, 2,905 ps. Oetling & Co.		Rotterdam, 6 35 cs.	
Paraffin Wax — U. States, 273 brls. H. Hill & Sons		" 104 G. H. Frank		Akassa, 450 bgs. Royal Niger Co.		Varnish — Antwerp, 2 cks.	
" 600 G. H. Frank		" 84 Phillips & Graves		Singapore, 1,525 bls.		White Lead — Rotterdam, 20 cks.	
" 100 C. Ogleby & Co.		Holland, 20 bls. Melchers, Runge & Co.		Old Harbour, 404 t.		Zinc Ashes — Antwerp, 8 cks. J. T. Fletcher & Co.	
" 3,747 J. H. Usmar & Co.		Singapore, 1,556 tins. Kaltenbach & Schmitz		Rotterdam, 6 cks.		Zinc Oxide — New York, 100 brls.	
Belgium, 6 cks. T. H. Lee		Tartaric Acid — Holland, 40 pkgs. Middleton & Co.		Calcutta, 280 bgs. Ralli Bros.		Antwerp, 25	
Rangoon, 825 cs. H. Hill & Son		" 3 B. & F. Wf. Co., Ltd. Domeier & Co.		Lisbon, 5 bls. 5 bgs. Edward Bros.			
Phosphate Rock — France, 177 t. Anglo-Cont. Guano Wks.		Tinical — E. Indies, 499 pkgs. Ralli Bros.		Saffron — Valencia, 2 cs.			
Belgium, 200		Tin Oxide — Holland, 5 pkgs. H. Lambert		Trieste, 22 bls. T. Ralph & Co.			
" 175 Odams Chemical Wks.		Turpentine — N Zealand, 185 brls. Fairclough, Dodd & Jones		Barcelona, 50 bgs.			
" 150 Fox, Roy & Co.		Ultramarine — Belgium, 2 cks. Leach & Co.		Tanner's Bark			
" 50 F. W. Berk & Co., Ltd.		Holland, 15 Hernu, Peron & Co.		San Francisco, 484 sks.			
" 200 West & Penrose		Varnish — Belgium, 15 pkgs. Stobbs, Wilson & Co.		Smyrna, 26 t. Essayan, Shaburn & Co.			
U. States, 3,493 Wyllie & Gordon		" 12 T. H. Lee		" 73 10 c. 1,400 bgs.			
W. Indies, 620 London Phosphate Co.		Vermillion — Germany, 1 cs. Phillips & Graves		Glucose — New York, 2,071 brls.			
France, 135 A. Hunter & Co.		White Lead — Germany, 40 cks. Randall Bros.		" 50 T. M. Duché & Sons			
Holland, 7 Coml. Lightge. Co.		" 46 M. Ashby, Ltd.		Iron Oxide — Trieste, 6 cks. Gabain Bros.			
Pitch — France, 9 cks. Poth, Hill & Co.		" 11 Petri Bros.		Lead Acetate — Hamburg, 12 cks.			
Plumbago — Holland, 5 cs. G. Rahn & Co.		" 27 Colthurst & Harding		Limestone — Antwerp, 2 fms. 3 cs.			
Ceylon, 140 brls. Prop. Sun Wf.		Holland, 31 T. & W. Farmiloe		Manganese — Yokohama, 148 t.			
" 136 R. G. Hall & Co.		Zinc Oxide — Holland, 137 brls. M. Ashby, Ltd.		Bordeaux, 103			
Holland, 15 cks. B. Gallaway		U. States, 100 " J. Matton		Manure — Constantinople, 180 bls.			
Germany, 12 cs. T. H. Lee		Germany, 25 cks. C. J. Capes & Co.		Mica — New York, 10 brls. T. Robinson & Sons			
Potash — France, 70 c. Petri Bros.		Holland, 100 Union Lightge. Co., Ltd.		Mineral White — Trieste, 100 bgs. F. Parisi			
Potassium Carbonate — France, 30 c. Spies, Bros. & Co.		Zinc Sulphate — Germany, 20 pkgs. Grosscurth & Luboldt		Oleo Stearine — New York, 45 tcs.			
" 200 Charles & Fox				Paint — Hamburg, 10 cks.			
Germany, 250 Elkan & Co.				Halifax, 10 crts. H. W. Huckvale			
" 17 cks. Beresford & Co.				Paraffin Scale — Baltimore, 85 brls.			
Potassium Chloride — Germany, 203 pkgs. Charles & Fox				Paraffin Wax — Philadelphia, 950 brls.			
Potassium Permanganate — Germany, 5 pkgs. H. Lorenz				Phosphate — Ghent, 540 t.			
Potassium Sulphate — France, 24 pkgs. Mead, Son & Co.				Aruba, 400			
" 124 Petri Bros.				Potash — Hamburg, 18 cks.			
Pyrites — Spain, 2,954 t. C. Tennant, Sons & Co.				Pyrites — Huelva, 2,548 t. Matheson & Co.			
Quicksilver — Spain, 5,997 flks. N. M. Rothschild & Sons				" 1,790 Tennants & Co.			
Rosin — U. States, 3,000 brls. Prod. Brokers Co.				Rosin — New York, 400 brls.			
" 2,500 Fairclough, Dodd & Co.				Salt — Rotterdam, 1 bgs.			
" 1,000 Moore & Hole				Saltpetre — Hamburg, 1 brl. 1 kg.			
Holland, 12 bgs. T. H. Lee							
Saltpetre — E. Indies, 615 bgs. Ralli Bros.							
" 597 Lucas & Spencer's Wf.							
" 683 Perkins & Homer							
Sodium Acetate — France, 9 cks. S. F. Waters & Co.							
Sodium Sulphate — Holland, 12 pkgs. W. Allison & Co.							
Stearine — France, 120 bgs. H. Hill & Sons							
Holland, 127 " "							
Sulphur — Italy, 10 t. P. Ironside							
" 19 Galbraith, Pembroke & Co.							
" 10 F. Smith							
" 100 Johnson & Hooper							
" 10 Wincott, Cooper & Co.							
" 45 G. Boor & Co.							

HULL.

Week ending May 27th.

Aluminium — Flushing, 1 cs. Wilson, Sons, & Co., Ltd.	
Asbestos — Flushing, 1 bl.	
Barytes — Bremen, 19 cks. Hutchinson & Son	
Rotterdam, 47 Bailey & Leatham	
Bone Meal — Bombay, 2,750 bgs.	
Chemicals (otherwise undescribed) — Antwerp, 335 pkgs. Wilson, Sons, & Co., Ltd.	
Bremen, 4 pkgs. Veltmann & Co.	
Rotterdam, 2 cks. Hutchinson & Son	
Hamburg, 3 cks. 46 pkgs. Wilson, Sons, & Co., Ltd.	
Colours — Antwerp, 70 bgs. 2 brls. Wilson, Sons & Co., Ltd.	
Flushing, 1 cs. 4 cks. Wilson, Sons, & Co., Ltd.	
Danzig, 15 pkgs. "	
Stettin, 100 kgs. 20 brls. "	
" 25 cks. "	
Rotterdam, 133 pkgs. W. & C. L. Ringrose	
" 6 G. Lawson & Sons	
Bremen, 1 ck. 1 cs. Veltmann & Co.	
" 12 J. Pyefinch & Co.	
Ghent, 7 Wilson, Sons, & Co., Ltd.	
Rotterdam, 2 cks. Tudor & Sons	
" 3 cs. Hutchinson & Son	
Hamburg, 1 Wilson, Sons, & Co., Ltd.	
Flushing, 13 28 cks.	
Antwerp, 8 Bailey & Leatham	
Copperas — Hamburg, 17 cs. Wilson, Sons, & Co., Ltd.	
Dextrine — Stettin, 200 bgs. Wilson, Sons, & Co., Ltd.	
Dyestuffs — Alizarine	
Rotterdam, 111 pkgs. W. & C. L. Ringrose	
Nyabolams — Bombay, 11,999 bgs.	

LIVERPOOL.

Week ending May 25th.

Alkali — Rotterdam, 1 ck.	
Alumina Sulphate — Rotterdam, 4 cks.	
Ammonia — New York, 25 bxs.	
Antwerp, 1 cs.	
Ammonium Chloride — Philadelphia, 50 brls.	
Barytes — Rotterdam, 48 cks.	
Castor Oil — Leghorn, 10 cs.	
Calcutta, 250	
Chemicals (otherwise undescribed) — Rotterdam, 5 cks.	
Colours — Sierra Leone, 5 brls. Pickering & Berthoud	
Hamburg, 4 cks.	
In transit, 30 cs.	
Antwerp, 6 brls. J. T. Fletcher & Co.	
" 1	
Rotterdam, 16 cs. 22 cks.	

Farina—			
Danzig,	100 bgs.	Wilson, Sons & Co., Ltd.	
Stettin,	500	"	
Ghent,	83 cs.	Wilson, Sons & Co., Ltd.	
Harlingen,	340 pkgs.		
Hamburg,	100 bgs.		
Glucose—			
Stettin, 52 cks.	500 bgs.	Wilson, Sons & Co. Ltd.	
Manure—			
Ghent,	260 t.	Wilson Sons, & Co., Ltd.	
Mica—			
Christiania,	3 cs.	Wilson, Sons, & Co., Ltd.	
Naphtha—			
Rotterdam,	2 cks.	W. & C. L. Ringrose	
Ochre—			
Antwerp,	35 bgs.	Wilson, Sons, & Co., Ltd.	
Phosphate Rock—			
Pt. Royal,	1,050 t.	Hammond, Ems & Co.	
Pitch—			
Rotterdam,	42 cks.	Hutchinson & Son	
Saltpetre—			
Hamburg,	100 pks.	Wilson, Sons, & Co. Ltd.	
Soda—			
Rotterdam,	4 cks.	Hutchinson & Son	
Tallow—			
Antwerp,	33 pks.	Wilson, Sons, & Co. Ltd.	
Tartaric Acid—			
Rotterdam,	5 cks.	W. & C. L. Ringrose	
"	3	G. Lawson & Sons	
"	2	Woodhouse & Co.	
Waste Salt—			
Hamburg,	51 t.	Wilson, Sons, & Co., Ltd.	
White Lead—			
Rotterdam,	20 cks.	Sissons, Bros. & Co.	
"	12	Storry, Witty & Co.	
"	9	Hanger, Watson & Harris	
Ghent,	40	Wilson, Sons, & Co., Ltd.	
Rotterdam,	10 cks.	T. F. Chambers & Co.	
"	13	Hutchinson & Son	
Antwerp,	15 cks.	Bailey & Leetham	
Zinc Oxide—			
Rotterdam,	50 brls.	Hutchinson & Son	

GLASGOW.			
<i>Week ending June 1st.</i>			
Aniline Colours—			
Rotterdam,	1 ck.	J. Rankine & Son	
Hamburg,	2 cs.		
Barium Sulphate—			
Antwerp,	100 bgs.	69 cks.	
Barytes—			
Rotterdam,	63 cks.	J. Rankine & Son	
Bone Meal—			
Bombay,	2,000 bgs.		
Castor Oil—			
Marseilles,	218 cks.		
Cellulose—			
Hamburg,	307 bls.		
Chemicals (otherwise undescribed)			
Rotterdam,	5 cks.	J. Rankine & Son	
Hamburg,	3 cs.		
Colours—			
Rotterdam,	8 cs. 8 cks.	21 brls.	
"		J. Rankine & Son	
Hamburg,	6 brls.	5 cks.	
Cream of Tartar—			
Marseilles,	15 cks.		
Dyestuffs—			
Alizarine			
Rotterdam,	149 cks.	J. Rankine & Son	
Annatto			
Bordeaux,	3 cks.		
Extracts			
Marseilles,	4 cks.		
Fiume,		125 brls.	
Antwerp,	5		
Logwood			
Rotterdam,	2,307 pcs.	J. Rankine & Son	
Madder			
Marseilles,	12 cks.		
Sumac			
Palermo,	300 bgs.		
Farina—			
Delfshyl,	700 bgs.		
French Chalk—			
Trieste,	25 bgs.		
Glucose—			
New York,	379 brls.		
Iron Oxide—			
Montreal,	90½ brls.		
Paint—			
New York,	1 bx.		
Painters' Colours—			
Antwerp,	5 cs.		
Phosphate—			
Ghent,	1,000 bgs.		

Pitch—			
Antwerp,	10 cks.		
Potashes—			
Montreal,	5 brls.		
Potassium Carbonate—			
Hamburg,	10 cks.		
Potassium Prussiate—			
Hamburg,	38 cks.		
Pumice Stone—			
Messina,	36 cs. 4 cks.		
Rosin—			
New York,	2,450 brls.		
Salt—			
N. York,	1 cs.		
Saltpetre—			
Hamburg,	20 cks.		
Soap—			
New York,	500 bxs.		
Stearine—			
Rotterdam,	17 cks.	J. Rankine & Son	
Sulphur—			
Fiume,	100 bgs.		
Tallow—			
New York,	60 hhds. 20 tics.		
Tannin—			
Hamburg,	6 cks.		
Tartar			
Bordeaux,	5 cks.		
Fiume,	3		
Oporto,	5		
Tartar Emetic—			
Hamburg,	5 cks.		
Waste Salt—			
Hamburg,	1,295 bgs.	85 cks.	
White Lead—			
Rotterdam,	72 cks.	J. Rankine & Son	
Zinc Oxide—			
New York,	10 brls.		
Zinc Sulphate—			
Rotterdam,	2 brls.	J. Rankine & Son	

TYNE.			
<i>Week ending May 27th.</i>			
Antimony—			
Hamburg,	21 cs.	Tyne S. S. Co.	
Colours—			
Antwerp,	3 brls.	Tyne S. S. Co.	
Glucose—			
New York,	100 brls.	Furness, Withy & Co.	
Limestone—			
Antwerp,	1 crt.	Tyne S. S. Co.	
Paint—			
Antwerp,	17 cks.	Tyne S. S. Co.	

Salt—			
Harburg,	270 t.		
Sulphur—			
Pomaron,	1,140 t.	Mason & Bar	
Tallow—			
New York,	40 hhds.	Furness	
		Withy & Co.	
Waste Salt—			
Harburg,	190 t.		
White Lead—			
Antwerp,	28 brls.	Tyne S. S. Co.	

GOOLE.			
<i>Week ending May 24th.</i>			
Benzol—			
Rotterdam,	8 pkgs.		
Dyestuffs—			
Extracts			
Hamburg,	1 ck.		
Logwood			
Jamaica,	1,331 t.		
Belize,	425		
Monte Christe,	509		
Madder			
Rotterdam,	4 cks.		
Dyestuffs (otherwise undescribed)			
Boulogne,	6 pkgs. 8 cks.	1 cs.	
Ghent,	2 brls.		
Ochre—			
Rouen,	76 cks.		
Phosphate—			
Ghent,	816 bgs.	100 t.	
Potash—			
Dunkirk,	74 dms.		
Calais,	19		
Potassium Sulphate—			
Dunkirk,	100 bgs.		
Saltpetre—			
Rotterdam,	100 bgs.		
Hamburg,	40 kgs.	4 cks.	
Waste Salt—			
Hamburg,	836 cks.	1,016 bgs.	

GRIMSBY.			
<i>Week ending May 27th.</i>			
Caoutchouc—			
Antwerp,	1 cs.		
Rotterdam,	1 pkge.		
Hamburg,	1		
Chemicals (otherwise undescribed)			
Hamburg,	2 cks.		
Dyestuffs (otherwise undescribed)			
Dieppe,	2 cs.		

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		
Week ending May 31st.		
Acids—		
B. Ayres,	6 t.	£55
Oporto,	19 c.	15
Alkali—		
Auckland,	2 t. 12 c.	£19
Algoa Bay,	1	11
Oporto,	2 13	29
Natal,	1 15	51
Alum—		
B. Ayres,	1 t. 13 c.	£10
Melbourne,	2 10	15
Madras,	44 11	261
Alum Cake—		
Calcutta,	40 t. 1 c.	£140
Ammonia (Liquid)—		
Dunedin	5 c.	£10
Algoa Bay,	13 pkgs.	12
Ammonium Carbonate—		
Gothenburg,	1 t. 18 c.	£52
Dunedin,	5	10
Copenhagen,	2	54
St. Petersburg,	10	252
Stockholm,	10 kgs.	14
Danzig,	1 8	35
Ammonium Chloride—		
Hamburg,	45 cks.	£750
Trebizonde,	1 t.	33
Lisbon,	1 1 c.	34
Ammonium Sulphate—		
Trinidad,	6 t. 8 c.	£78
Mauritius,	200	2,125
Arsenic—		
Sydney,	10 c.	£8
Melbourne,	9 t. 19	147
Wellington,	15	13
Otago,	2	30
Barium Chlorate—		
New York,	3 c.	£16
Boracic Acid—		
Sydney,	5 c.	£10
Borax—		
Pt. Elizabeth,	10 cs.	£41
Hamburg,	4 c. 6 cks.	59
Cantebury,	5 c.	8
Harlingen,	18	63
Braila,	3	6
Calcium Chloride—		
Natal,	12 drs.	£16
Carbolic Acid—		
Shanghai,	21 pkgs.	£14
Sydney,	70	78
Algoa Bay,	3 cs.	30
Marseilles,	80 cks.	607
Malta,	1 t. 12 c.	52
Caustic Soda—		
Algoa Bay,	1 t. 18 c.	£46
E. London,	3 4	45
Natal,	12 18	220
Mauritius,	7 10	110
Lyttelton,	2 14	27
St. Michaels,	14	20
Chemicals (otherwise undescribed)		
Champ. Bay,	34 cs.	£101
Natal,	7	24
Adelaide,	19 c. 24 pkgs.	95
Melbourne,	1	40
St. Michaels,	2	30
Citric Acid—		
B. Ayres,	5 cks.	£75
Hamburg,	2 t. 7 c.	381
Constantinople,	3	95
St. Petersburg,	3 11 10 kgs.	499
Sydney,	10	7
Piræus,	1	8
Cadiz,	5	40
Bombay,	10	37
Libau,	20 cks.	793
Brussels,	5	39
Calcutta,	5 1 cs.	9
Alexandria,	5	40
Lisbon,	10 5	80
E. London,	1	5
Rotterdam,	7	54
Natal,	2	16
New York,	1 5	200

note—

1 cs.	£20
Salts	
78 cs.	£1,080
Soda	
333 cks.	£2,165
142 cks.	£861
16 drs.	130
12 10	82
55 21	328
245	245
Oil	
21 brls.	£41
107 brls.	£250
Alum	
7 cks.	£9
73 pkgs.	163
Wax	
4 tks.	£143
500 t.	£625
55 cks.	75
115 144	2,013
2,013	35
100 brls	73
N.B., 120	30
100	138
178	91
564 bgs.	423
50 brls.	£25
80 drs.	10
1,541	444
15	12
50	12
475	28
125 brls.	75
25 cks.	£75
50 brls.	23
4	10
15	33
30 pns.	£260
ulphate	
10 t. 10 c.	£170
20	341
69	1,190
12	12
30	478
5 3	75
5 2	86
Tartar	
3 c.	£13
1 t. 10 kgs.	118
1 16	162
10	51
5 cks.	19
4	17
5	20
ants	
100 cks. 100 drs.	£46
22 cs.	79
201 pkgs.	31
11	29
1 t. 15 c.	12
od	
25 t. 2 c.	£182
of Sulphur	
600 kgs.	£339
3 t. 14 c.	41
state	
20 kgs.	£18
16 t. 5 c.	£183
60	600
54 6	215
18	180
149 7	1,550
100	385
13	90
40	540
530 16	5,308
21 17	176

Muriatic Acid—

Hong Kong, 10 cs. £8

Nitric Acid—Otago, 5 cs. £13
Hong Kong, 10 21**Oxalic Acid—**

Sydney, 9 c. £13

Phosphoric Acid—

Boulogne, 2 c. £12

Phosphorus—Sydney, 11 cs. £111
Invercargill, 23 234**Potash Crystals—**Oporto, 2 c. £28
Toronto, 1 t. 6 121**Potassium Bichromate—**

Calcutta, 5 cks. £24

Potassium Chlorate—Sydney, 10 c. £33
Lisbon, 5 19**Potassium Cyanide—**Shanghai, 11 c. £26
Bombay, 10 27**Potassium Prussiate—**Sydney, 5 c. £20
Lisbon, 16 61**Salts—**

Antwerp, 145 t. £254

Saltpetre—Natal, 10 c. £11
Melbourne, 2 t. 10 54
Bahia, 113 5 188
Canterbury, 10 11
Vigo, 3 60
Corunna, 15 16
Oporto, 8 17
Hamilton, 16 19
Rio de Janeiro, 2 5 100
Santos, 4 9 50
Hobart, 10 11**Sheep Dip—**Odessa, 100 cs. £300
Natal, 1 t. 3 c. 1,275 drs 295
E. London, 100 21**Soda—**Barbadoes, 16 c. £3
Cape Town, 6 t. 11 20**Soda Crystals—**Cape Town, 1 t. £4
Natal, 1 6
Mossel Bay, 18 c. 4
Boston, 4 60
Sydney, 100 301**Sodium Bicarbonate—**Cossack, 10 c. £6
Canterbury, 1 t 8
E. London, 1 10 10
Santos, 1 19 13
Wellington, 3 13 25
Hong Kong, 1 10 12**Sodium Carbonate—**Natal, 5 c. £5
Mossel Bay, 6 5**Strontium Carbonate—**

New York, 17 c. £39

Sulphur—

Algoa Bay, 1 t. 7 c. £13

Sulphuric Acid—Geraldton, 6 c. £14
Colombo, 4 t. 17 16
Canaries, 27 pkgs 14
Alexandria, 8 10
Cape Town, 3 10 15**Tartaric Acid—**Fremantle, 9 c. £43
B. Ayres, 1 ck. 78
Calcutta, 2 13
Hamburg, 10 53
Brisbane, 5 54
Gibraltar, 2 cs. 11
Lisbon, 4 20
Hobart, 3 17
Sydney, 4 22
Melbourne, 3 kgs. 16**LIVERPOOL.**

Week ending May 31st.

Acetic Acid—

Carthagena, 16 c. 2 q. £18

Alum—Vigo, 1 t. £4
Seville, 5 6 c. 2 q. 24
Malaga, 1 2 1 6
Singapore, 2 2 10
Alexandretta, 8 8 46
Galatz, 5 7 32
Ibrail, 5 16 35
Callao, 3 11 17
Pernambuco, 1 2 5
Lisbon, 5 15 3 34
Rangoon, 19 6
Montreal, 3 18
Billao, 2 15 16
Kustendjie, 1 15 10**Ammonium Carbonate—**B. Ayres, 1 t. 5 c. £35
Billao, 10 2 q. 15
Montreal, 5 7
Gothenburg, 10 3 15**Ammonium Chloride—**Billao, 5 c. £9
Ibrail, 9 2 q. 16
Galatz, 1 t. 3 34
Macao, 8 2 24
Iquique, 1 3 6
Rangoon, 1 2 2 36
Bombay, 4 1 1 132
Barcelona, 2 2 2 68**Ammonium Sulphate—**Antwerp, 150 t. £1,500
Las Palmas, 25 4 c. 309
Malaga, 50 18 2 q. 611
Barbadoes, 101 16 2 1,221
Pasages, 5 7 16
Demerara, 71 14 2 928
Tegal, 176 7 1 1,016
Samarang, 22 14 1 285
Valencia, 330 16 3 3,788
Gr. Canary, 24 10 306
St. Nazaire, 8 15 96**Antimony—**Ferrol, 1 ck. £1
Havana, 1 1**Arsenic—**

B. Ayres, 2 t. £43

Bleaching Powder—Baltimore, 335 cks. 90 bxs.
Barcelona, 40 brls.
Boston, 510
B. Ayres, 20 dms.
Calcutta, 150 cs.
Galatz, 5
Havana, 22
Mexico, 5
New York, 313
Philadelphia, 61
San Francisco, 69 178
Seville, 28
Vigo, 6
Genoa, 60
Ghent, 65**Bone Meal—**

Las Palmas, 10 t. 3 c. £52

Boracic Acid—Havre, 1 t. 2 q. £40
Yokohama, 2 76**Borax—**Corunna, 9 c. 3 q. £14
Santiago de Cuba, 5 8
Amsterdam, 3 t. 13 3 109
Hamburg, 20 7 2 630
Bordeaux, 1 2 30
Rotterdam, 10 15 1 319**Calcined Magnesia—**

Vera Cruz, 8 cs.

Carbolic Acid—Rouen, 4 t. 15 c. £217
Shanghai, 2 cs. 11
B. Ayres, 17 t. 17 c. 500
Cadiz, 2 81
Antwerp, 8 cks. 16
Hiogo, 10 30
Rotterdam, 28 cks. 10 t. 2 c. 2 q 813
Montreal, 19 14
Constantinople, 3 7
Hamburg, 10 kgs. 11 14 2 520
Philadelphia, 5 10 100**Carbolic Oil—**

Winnipeg, 3 c. 1 q. £20

Castor Oil—Bourgas, 1 ck.
Elmina, 5 cs.**Caustic Potash—**Baltimore, 2 t. 2 c. £48
Sydney, 6 10**Caustic Soda—**Amsterdam, 31 dms.
Bahia, 10 1 ck.
Baltimore, 150 135 brls.
Barcelona, 352 48 cks.
Boston, 75 28
B. Ayres, 20
Carthagena, Sp. 22
Galatz, 36
Hamburg, 50
Havana, 50
Honolulu, 20
Ibrail, 35
La Guayra, 50
Leghorn, 35
Malaga, 18
Malta, 10
Manzanilla, 20
Melbourne, 60
Messina, 35
Montreal, 15 brls.
New York, 230
Odessa, 95
Para, 29
Pernambuco, 78
Philadelphia, 29 brls. 65 cks.
Rouen, 34 dms.
San Francisco, 30
Seville, 66
Sydney, 34
Tampico, 200
Tarragona, 120
Valparaiso, 35
Vera Cruz, 10
Penang, 3
Singapore, 12**Chemicals (otherwise undescribed)**Ibrail, 6 c. 3 q. £11
Odessa, 1 t. 10 45
Boston, 3 5 72
Mersyne, 8 12
Kustendjie, 5 8
Volo, 4 6
Galatz, 1 12 50
Kurrachee, 13 50
Genoa, 2 4 1 59
Gothenburg, 5 8
Hamburg, 12 19
New York, 9 16 324
Philadelphia, 12 19 298**China Clay—**Boston, 283 t.
Barcelona, 40**Citric Acid—**Vigo, 1 c. £8
Oporto, 2 17
Vera Cruz, 6 48**Coal Products—****Aniline Colours**

Genoa 1 cs. 1 kg.

Anthracene

Rotterdam, 26 t. 5 c. £300

Pitch

Kustendjie, 10 cks.

Tar

Batavia, 50 brls.

B. Ayres, 6 cks.

Tar Oil

B. Ayres, 500 dms.

Cobalt Oxide—Hamburg, 1 cs. £42
Rotterdam, 2 65**Copperas—**

Alexandretta, 3 t. 9 c. £6

Montreal, 9 8 2 q. 18

Alexandria, 82 5 127

Odessa, 9 19 1 18

Rio Janeiro, 1 18 1 4

Copper Sulphate—Marseilles, 325 t 10 c. 3 q. £5,219
Rouen, 10 165
Seville, 4 18 1 86
Calcutta, 1 18
Patras, 1 2 18
Leghorn, 13 7 1 218
Genoa, 47 12 1 827
Odessa, 8 9 3 59
Venice, 40 8 2 651
Iquique, 3 3 4
Bordeaux, 300 12 4,821
Lisbon, 16 13 2 276

Disinfectants—

Bombay, 4 t. £49

Dried Blood

Gr. Canary, 10 t. 4 c. 2 q. £65

Flowers of Sulphur—

Punta Arenas, 1 t. 3 q. £8

Glucose—

Malta, 40 bgs.

Guanos—

Santos, 5 t. £12

Las Palmas, 10 22

Valencia, 100 1 c. 982

Pasages, 10 33

Cullera, 250 1,875

Gypsum—

New York, 71 t. 17 c. £264

Hydrochloric Acid—

Bombay, 7 t. £33

Hydrofluoric Acid—

B. Ayres, 2 t. £270

Iron Oxide—

Santander, 3 t. 10 c. 1 q. £19

Lime—

Quettah, 3 t. 8 c. 1 q. £10

Pernambuco, 4 5 82

Limestone—

New York, 4 c.

Magnesia—

Lisbon, 1 c.

Magnesium Citrate—

Manila, 2 c.

Magnesium Sulphate—

Bombay, 550 kgs.

B. Ayres, 20

Alexandria, 100

Halifax, 20 brls.

Manure—

Rotterdam, 9 t. 17 c. £28

Honolulu, 100 1,500

Valencia, 60 416

Pernambuco, 1 3 50

Metallic Sodium—

Rotterdam, 1 t. 14 c. 2 q. £308

Oxalic Acid—

San Francisco, 3 t. 8 c. £87

Bordeaux, 12 1 q. 17

Bilbao, 7 2 27

Rotterdam, 13 2 19

Paint—

Calcutta, 120 kgs.

Corinto, 13 cs.

Genoa, 44 pkgs.

Gibraltar, 5 2 cks.

Larnaca, 2 8 dms.

Lisbon, 32 kgs.

Malta, 11 24 cks.

Panama, 14 24 cks.

Para, 6 kgs.

Porto Alegre, 17 17

Port Said, 20 cs. 45

Quebec, 20 16

Rio de Janeiro, 84 16

Salonica, 2 2

Santander, 10 cs.

Santiago, 64 kgs. 4 pkgs. 1 cs. 10 dms.

Savannah, 60 kgs.

Sierra Leone, 4 cks.

Valencia, 11 1 2 brls.

Bahia, 485 18 cs.

Bombay, 3 dms.

Callao, 10 brls.

C. C. Castle, 6 3

Manila, 10 brls.

New York, 2 40

Opobo, 10 13

Pernambuco, 3 8

Pisagua, 5 2 pkgs.

Puerto Cabello, 30 3

Rosario, 120 dms.

St. John's, Nfld., 2 kgs. 2 cks. 1 cs.

Salaro, 113 22

Salt Pond, 2 brls. 2 kgs. 2 cks. 1 cs.

Shanghai, 113 22

Toronto, 2 brls. 2 kgs. 2 cks. 1 cs.

Valparaiso, 113 22

Painters' Colours—

Bahia, 75 brls.

Barbadoes, 4 cs. 221 kgs. 1 ck.

Belize, 100 1

Bocas del Toro, 36 brls.

Boston, 1

B. Ayres, 32 cs. 16 cks. 47 brls. 9 kgs.

Calcutta, 30 cs.

Cienfuegos, 1 brl.

Coquimbo, 62 4

Corfu, 3

Havana, 3

Hong Kong, 10 tcs. 300 kgs.

Lisbon, 10 10

Malta, 10 10

Montreal, 202 dms. 45 cs. 237 cks.

New York, 113 cks. 3 brls.

Oporto, 4 2 cs.

St. John's, Nfld. 3 44 202 kgs.

Valparaiso, 13 100

Vera Cruz, 4 600

Cardenas, 4 600

Constantinople, 40 14

E London, 15 14

Halifax, 9 3 cs.

Maranham, 2 tcs. 7 brls.

Mayaguez, 4 cs. 1 ck. 12 brls. 3 kgs.

M. Video, 100

Santos, 100

Paraffin Wax—

Bombay, 5 cs. 25 bgs.

Odessa, 10 15

Pernambuco, 15

Phosphorus—

San Juan, 5 cs. £72

Puebla, 6 66

Havana, 6 79

Yokohama, 10 126

Kobe, 16 188

B. Ayres, 16 c. 1 q. 110

Plumbago—

Rosario, 10 cks.

Santander, 3

Potassium Chlorate—

Corunna, 5 c. £20

Boston, 5 t. 5 310

Bilbao, 1 81

Rotterdam, 7 10 430

Hamburg, 1 12 102

Vera Cruz, 1 17

M. Video, 2 5 140

Havana, 3 10 266

Hiogo, 10 10 575

Shanghai, 2 10 588

Yokohama, 10 4 16

Valparaiso, 10 28

Hong Kong, 23 15 1,167

New York, 7 10 481

Gotenburg, 1 4 75

Ghent, 2 124

Genoa, 1 74

Santos, 1 77

San Juan, 1

Potassium Prussiate—

Rosario, 1 c. 3 q. £10

Potassium Silicate—

Amsterdam, 1 t. 4 c. 2 q. £6

Potassium Sulphate—

Colon, 8 c. 3 q. £9

Rosin

Hamburg, 58 brls.

Salt—

Aarhus, 318 t.

Antwerp, 190

Baltimore, 250

Boma, 7 10 c.

Boston, 600

B. Ayres, 46 18

Calcutta, 5,048

Callao, 1 1

Cameroons, 60 3

C. C. Castle, 72 10

Elmina, 12 10

Ghent, 180

Gd. Bassam, 11 18

Halifax, 402

Iceland, 153

Jones River, 40

Landana, 5

M. Video, 6 8

Montreal, 1,287

New Orleans, 365

New York, 38

Para, 17 17

Pugwash, N.S. 150

Rotterdam, 125

Rouen, 10

Savannah, 250

Sydney, 811

Toronto, 90 18

Valparaiso, 2 3

Warri, 13 8

Arim, 5

Lagos, 200

Sierra Leone, 200

Talcabano, 200

Saltcake—

Gijon, 54 t. £108

Saltpetre—

Maceio, 19 c. 3 q. £22

B. Ayres, 1 t. 22

Para, 24 519

Adelaide, 1 21

Pernambuco, 14 17 3 360

Ferrol, 10 10

Sheep Dip—

M. Video, 8 t. £167

Odessa, 2 5 c. 2 q. 100

B. Ayres, 32 6 3 644

Calcutta, 7

Size—

Lisbon, 6 brls.

Ghent, 1 ck.

Soap—

Accra, 120 bxs.

Alexandria, 90

Attoasboe, 21

Barbadoes, 1,000

Bayin, 33

Belize, 1 cs.

Benin, 200

Boma, 20

Bombay, 500 6 6 cks.

Bonny, 550

B. Ayres, 2

Calcutta, 5 10

Cameroons, 2

C. C. Castle, 60 2

Curacao, 25

Elmina, 50

Genoa, 100

Gibraltar, 215

Guayaquil, 900

Halifax, 200

Hamburg, 100

Kingston, Ont., 50

Kurrachee, 970 15

Lausanne, 120

Livingstone, 80

Loanda, 1

Malta, 30 20

New Orleans, 3

New York, 2

Nyanga, 25

Old Calabar, 1,550

Para, 1

Piraeus, 90

St. John's, Nfld., 885

St. Kitts, 400

St. Lucia, 110

Cette Camma, 50

Shanghai, 4,118 2

Syra, 90

Trinidad, 1,205

Vera Cruz, 1

Amsterdam, 475

Brussels, 400

Constantinople, 10

Havre, 240

Liegeuse, 400

Madras, 20

Maranham, 2

M. Video, 1

Montreal, 200

Opobo, 3,500

Rangoon, 500 5

Rome, 5

Rotterdam, 785

Salt Pond, 236

Sierra Leone, 50

Singapore, 9

Smyrna, 30

Sydney, 1,480

Talcabano, 1

Toronto, 750

Valparaiso, 600 bgs.

Warri, 200

Zanzibar, 350

Soda—

Trinidad, 2 kgs.

Soda Alkali—

B. Ayres, 17 brls.

Calcutta, 20

Galatz, 17

La Guayra, 15

Melbourne, 40

Newcastle, N.S.W., 40

Odessa, 50

Soda Ash—

Antwerp, 4 cks. 9 brls. 300 bgs.

Baltimore, 602 2,000 kgs. 200

Boston, 250 1,300

B. Ayres, 200 brls. 78

Cheribon, 14 cks.

Fiume, 50

Galatz, 18 50

Leghorn, 100 50

M. Video, 20 bxs.

Montreal, 484 1,360

New York, 822 1,000

Philadelphia, 30

Port Colborne, 500

Rotterdam, 96

Sherbrooke, 60

Venice, 102

Hobson's Bay, 237

Melbourne, 18

Napanea, 75 brls.

Piraeus, 10

Puerto Cabello, 15

Seattle, 20

Valencia, 20

Soda Crystals—

Boston, 191 brls.

Calcutta,

WEDNESDAY, JUNE 7th.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Lime, Acetate (brown)	.. .. .	per ton	5 1
" " (grey)	.. .. .	" "	10 1
Magnesium (ribbon and wire)	.. .. .	per oz.	0
" Chloride (ex ship)	.. .. .	per ton	2 1
" Carbonate	.. .. .	per cwt.	17 6
" Hydrate	.. .. .	per ton	17 6
" Sulphate (Epsom Salts)	.. .. .	per ton	2 19
Manganese, Sulphate	.. .. .	" "	17 15
" Borate	.. .. .	per cwt.	2 12
" Ore, 70 %	.. .. .	per ton	4 5
Methylated Spirit, 61° O.P.	.. .. .	per gallon	0 2
Naphtha (Wood), Solvent	.. .. .	" "	0 1
" Miscible, 60° O.P.	.. .. .	" "	0 4
Oils:—			
Cotton-seed	.. .. .	per ton	23 0
Linseed	.. .. .	" "	20 10
Lubricating, Scotch, 890°—895°	.. .. .	" "	7 5
Petroleum, Russian	.. .. .	per gallon	0 0
" American	.. .. .	" "	0 0
Potassium (metal)	.. .. .	per oz.	0 3
" Bichromate	.. .. .	per lb.	0 0
" Carbonate, 90% (ex ship)	.. .. .	per ton	17 0
" Chlorate	.. .. .	per lb.	0 0
" Cyanide, 98%	.. .. .	" "	0 2
" Hydrate (Caustic Potash) 80/85 %	.. .. .	per ton	21 10
" " (Caustic Potash) 75/80 %	.. .. .	" "	20 10
" " (Caustic Potash) 70/75 %	.. .. .	" "	20 0
" Nitrate (refined)	.. .. .	per cwt.	1 2
" Permanganate	.. .. .	per cwt.	3 5
" Prussiate Yellow	.. .. .	per lb.	0 0
" Sulphate, 90 % (ex ship)	.. .. .	per ton	9 1
" Muriate, 80 % (do.)	.. .. .	" "	8 1
Silver (metal)	.. .. .	per oz.	0
" Nitrate	.. .. .	" "	0
Sodium (metal)	.. .. .	per lb.	0
" Carb. (refined Soda-ash) 48 %	.. nett	per ton	6
" " (Caustic Soda-ash) 48 %	.. .. .	" "	4
" " (Carb. Soda-ash) 48 %	.. .. .	" "	4
" " (Carb. Soda-ash) 58 %	.. .. .	" "	5
" " (Soda Crystals)	.. .. .	" "	3
" Acetate (ex-ship)	.. .. .	" "	16
" Arseniate, 45 %	.. .. .	" "	12
" Chlorate	.. .. .	per lb.	0
" Borate (Borax)	.. .. .	net, per ton	25
" Bichromate	.. .. .	per lb.	0
" Hydrate (77 % Caustic Soda) (f.o.b.)	net pr. ton	lots	1
" " (74 % Caustic Soda)	" "	" "	10
" " (70 % Caustic Soda)	" "	" "	10
" " (60 % Caustic Soda)	" "	" "	10
" " (60 % Caustic Soda, cream) (f.o.b.)	" "	" "	10
" Bicarbonate	.. .. .	" "	"
" Hyposulphite	.. .. .	" "	"
" Manganate, 30%	.. .. .	" "	1
" Nitrate (95 %) ex-ship Liverpool	.. .. .	per cwt.	"
" Nitrite, 98 %	.. .. .	per ton	2
" Phosphate	.. .. .	" "	1
" Prussiate	.. .. .	per lb.	"
" Silicate (glass)	.. .. .	per ton	"
" " (liquid, 100° Tw.)	.. .. .	" "	"
" Stannate, 40 %	.. .. .	per cwt.	"
" Sulphate (Salt-cake)	.. .. .	per ton.	"
" " (Glauber's Salts)	.. .. .	" "	"
" Sulphide	.. .. .	" "	"
" Sulphite	.. .. .	" "	"
Strontium Hydrate, 100%	.. .. .	" "	"
Sulphocyanide Ammonium, 95 %	.. .. .	per lb.	"
" Barium, 95 %	.. .. .	" "	"
" Potassium	.. .. .	" "	"
Sulphur (Flowers)	.. .. .	per ton.	"
" (Roll Brimstone)	.. .. .	" "	"
" Brimstone: Best Quality	.. .. .	" "	"
Superphosphate of Lime (26 %)	.. .. .	" "	"
Tallow	.. .. .	" "	3
Tin (English Ingots)	.. .. .	" "	9
" Crystals	.. .. .	per lb.	"
Zinc (Spelter)	.. .. .	per ton	1
" Chloride (solution, 96° Tw.)	.. .. .	" "	"

the wrong side. There are not wanting signs that these prohibitive expenses will before long be reduced to a practical limit, and some of the ammonia-soda companies may then find it necessary to reconsider their position. It is true that, having brine at their elbows, they are in a position equal to that of any outsiders, and this may lead to developments we scarcely dare touch upon at the present time.

The continued prosperity of the largest ammonia-soda works in the world should show the directors of any despondent company that the problem is capable of solution, when set about in the right way. We await with interest the result of the Crewe meeting.

LONDON CHAMBER OF COMMERCE: CHEMICAL SECTION.

ANNUAL MEETING.

THE Chemical Trade Section of the London Chamber of Commerce held its annual meeting at the offices of the Chamber on Monday, the Chairman of the Section (Mr. Chas. Wightman) presiding.

The Chairman stated that while the agenda paper set forth that it was the annual meeting, it might be more properly regarded as a bi-annual meeting, since it was nearly two years since they had met to hold their annual meeting. For various reasons the annual meeting had been postponed from time to time, but they had had two years of fairly active work, of which, as was the custom at an annual meeting, he would now try to give them a *resumé* of the work of the year. The first matter which had come under the attention of the committee under his presidency was a communication from the *Chemical Manure Manufacturers' Association* as to a meeting which had been held between buyers and sellers of mineral phosphates and analytical chemists with the view of ascertaining the best method of determining the percentage of oxide of iron and alumina, and they as a section expressed their satisfaction with the steps which had been taken towards bringing about a greater uniformity in the analysis of mineral phosphates. The question of adulterated saffron had been before them through a letter which had been addressed to them by Mr. Dobbin, of Cork. It was stated that saffron was frequently adulterated with dyed marigold leaves, and otherwise treated, in order that its weight might be increased. Several members of the Section had testified to their knowledge of such cases of adulteration and the difficulty of dealing with them under the present system of administering the *Food and Drugs Act*, and they had advised Mr. Dobbin that they were of opinion that as saffron was a manufactured article, if falsely described at the time of sale it would come within the operation of the *Merchandise Marks Acts* of 1887; and, further, that the *Food and Drugs Act* should be enforced locally in such cases. Another very important question which they had had under consideration was what steps, if any, they should take to prevent rotten and unsound drugs being offered for sale at auctions. After careful consideration of the whole of the circumstances, the special committee which they had appointed to deal with the question reported that while there were certainly grievances existing, they were unable, without unduly interfering with the legitimate business of the drug, having regard specially to the fact that rotten or unsound elements in drugs were inseparable from the nature of the raw produce, its collection and transport, and it was consequently felt that the conditions now observed in the sale room should not be interfered with so long as rotten and unsound drugs were bought and sold as such, and especially as the law provided a remedy for misrepresentation. The report of the Parliamentary Committee on British and Foreign spirits, and especially that part dealing with *ether* and *methylated spirits*, had also engaged their attention, and they approved of the action of the Pharmaceutical Society in opposing the efforts of the Inland Revenue authorities to limit the quantity sold in the Derry and South Tyrone districts to one quart. As the interests of manufacturers were not seriously affected by the report, they had not considered it necessary to take any action of a positive character. They had also given attention to the position of the trade with reference to railway rates, but that matter had been largely left in the hands of their excellent deputy chairman, Mr. Chas. Umney, who had proved himself again and again to be one in whose hands a matter of this kind could be entirely left with the very best results to all concerned. They had, moreover, in conjunction with the *Coal Tar Distillers' Association*, lodged objections to the Canal Rates Bill on behalf of the heavy chemical trade. Having regard to the interests of the printing and allied trades, who were large consumers of chemicals, they had agreed to support the Council of the Chamber in the action which it had taken on behalf of those trades in opposing the American

Copyright Act. The modification of the Inland Revenue General Orders, so as to permit the export of essences and perfumed spirits, had been a subject which engaged at the time a good deal of attention, especially of the gentlemen in the perfumery trade, who, it was gratifying to know, had found so much assistance from acting under the ægis of the chamber, that they had formed themselves into a sub-section of the chemical section. The negotiations in regard to these orders had been conducted through the medium of the Chamber from time to time, and he believed that the orders ultimately issued were largely based upon the recommendations made by their essence sub-section, and in their final shape were satisfactory to all the interests concerned. Mr. Tyrer had called attention towards the end of 1891, to the alteration in the recent regulations affecting methylated spirits, expressing the opinion that there were many purposes for which methylated spirit could be legitimately and safely used in small quantities without the restrictions proposed. There had been, however, some difference of opinion on this subject, and Mr. Tyrer had rested satisfied with expressing his willingness to bring the subject up at a future meeting. A letter from the Board of Trade pointing out the danger arising from the insufficient packing of poisons intended for export to New Zealand had been before them, and they as a section, had expressed their view that the matter was one which could only be effectually dealt with by shipowners, under whose direction the storage of goods is carried out. He pointed out that as regards the labelling of packages of poisons, it was clearly to the interests of merchants that the nature of the contents should be distinctly marked, as provided by the Pharmacy Act of 1868, and they had further suggested that the Board should address the Associations representing the shipowners on the subject, in order that steps should be taken to provide against such poisons as arsenic being inadvertently stored with tapioca, or any other article of food, and to require the labelling of all such shipments with the name of the substance, and, beneath the name, the word "poison." Soon after that a handbill had been issued by the Board of Trade on the subject, a copy of which had been sent to each member of the Section. As regards the price and use of cinchona, a member of the Section had urged that pressure might be brought to bear on the chemists and druggists throughout the United Kingdom to regulate their charges for the sale where ordered in prescriptions, and so increase the use of this article, and save its cultivation in Ceylon and India from extinction. The general opinion had, however, been that nothing could be done to control the use of quinine, which depended more or less on the requirements of medical practitioners. Representations had been made to the Foreign Office as to the action of the Ottoman Government at the close of 1891, in deciding to affix on all pharmaceutical specialities a stamp before leaving the Custom House. The result had been that the wrapper and prospectuses were torn in such a way as to render the goods unsaleable, and as the stamp bore the date and month of the year, it was calculated to prejudice the sale of goods that had remained unsold for any length of time. The impost had, he believed, been ultimately removed through the agency of the Foreign Office. The action they had taken in connection with the Woolwich prosecution, where a local dealer was summoned to the court for selling *citric* and *tartaric acid* containing lead, was so fresh in their minds that he need hardly repeat the details. The specialist whom they had engaged had proved that the quantity of lead was so infinitesimal as to carry with it absolutely no danger to life, and further, that the amount of lead present was inseparable from the manufacture. The case had, fortunately, been dismissed as a frivolous one, and so the ill-advised zeal of the analysts, who, it was believed, were ready with a whole crop of cases, had that gone in their favour, was checked. The prosecution, however, had given rise to considerable discussion amongst the druggists as to whether the manufacturers could not supply a pure acid, which, while it might not be theoretically pure, would, at least, satisfy the requirements of the British Pharmacopœia, and so protect their customers and druggists from the effect of such prosecutions as that which had taken place at Woolwich. The difficulty was, however, to decide what was the standard test, for there was really no recognised test, each analyst priding himself upon his own.

The devising of a standard test, the allowable margin of impurity, and the question as to whether the sanction of a government officer should not be secured before a prosecution such as at Woolwich could be undertaken, were referred to a special committee, which had not yet made its report, although it had *pro tem.* recommended the adoption of a test which would tell whether the acid was B.P. standard or not; but that test had been called in question in a paper which had since been read at one of the scientific societies, and the whole question would consequently have to be re-opened. One good result had been, that after carefully considering and experimenting, the manufacturers had been able to supply a purer acid than before, and he could say that the foreign acids were also better. The section had about the same time opposed on behalf of some of its members, through the chamber, the Alkali, &c., Works Amendment Bill in the last session of Parliament; but as it was a government measure they had not been successful in

the stream would carry them away. Mr. Naylor was deputed to inquire into the matter and find out the names of the offenders. It was agreed that Blackburn County Borough should have two months' notice, the Inspector having stated that very little progress was being made there. As to Brierfield, the Clerk was directed to write to the Local Board, calling attention to the pollution now going on. A communication was received from the Horwich Local Board, against whom proceedings had been entered, but adjourned, stating that they were willing to submit to a similar order to that which had been made upon the Chorley Sanitary Authority, to the effect that two years should be allowed for their works to be completed. The Committee, however, thought this too long in the Horwich case, and authorised the Clerk, when it came on for the adjourned hearing, to agree to an order for twelve months.

A letter which had been received from Mr. H. L. Wright, of Chapel-street, Preston, was read, stating that he had been appointed Secretary of a Committee formed by the bleachers, dyers, and printers for the purpose of making arrangements with the Ribble Joint Committee whose wishes they were desirous to meet.

The Chairman said this communication would be dealt with by the sub-committee, who were arranging to meet the committees of paper makers and cotton manufacturers; and it was hoped that as a result of their negotiations arrangements would be arrived at that would prove satisfactory to all parties. The Rev. R. C. Fletcher remarked that he had been informed that large quantities of dead fish were coming down the river. The report was confirmed by other members of the Committee. Mention was also made of the condition of the water of the Ribble below its confluence with the Darwen. The Inspector said he would investigate the circumstances mentioned. There was a great deal of surreptitious emptying of manufacturers' tanks into the Calder and the Darwen on Saturdays and Sundays. Mr. Parke asked if the other inspectors were not sharp enough to catch them. Mr. Naylor replied that it would require about fifty inspectors to do that.

THE STOCKPORT SEWAGE SCHEME.

AT a Local Government Board inquiry, held by Mr. A. Taylor, at Stockport, last week, respecting an application for £95,000. for works for the treatment and disposal of sewage, Mr. Bryne (who appeared for the Corporation of Stockport) said that Stockport was a borough with steep gradients, and there was a perfect fall for the sewers, but the position of the ground at the outfall would necessitate pumping the sewage into tanks by means of a duplicate system of centrifugal pumps. Provision was to be made not only for the present normal rainfall and sewage, but for exceptional storms. The amount of land acquired for outfall works was 93 acres, of which it was proposed to utilise at present 63 acres. The estimated cost of the works was £80,500.

Mr. Fowler stated that in preparing the present scheme he proposed to utilise for some distance a sewer constructed at the time of the cotton famine. The total length of the sewer would be over three miles, and it would be carried for the most part through the red sandstone rock by a brick tunnel. The river would be crossed by means of iron pipes. The depth of the sewer would vary from 15 ft. to a greater depth for a short length. The capacity of the sewer would allow of the normal sewage being diluted seventeen times; it would carry off nearly 42 million gallons per day. Provision had been made for reasonable extension of the borough, the outfall works, which would be at Cheadle Heath, being calculated to serve for thirty years. The land acquired for filtration purposes was very suitable. The sewage would be received in six tanks, each 70 ft. long; then it would be treated chemically and passed over the land, on which they hoped to grow rye grass or crops.

The Inspector suggested that in proportion to the population there was a minimum of tank space.

Mr. Fowler said he should be glad to provide more tank accommodation. The sewage would be raised at the outfall about 17 ft. 6 in. by means of centrifugal pumps in duplicate, each capable of lifting 18,000,000 gallons per day. The chemical precipitant would be five to ten grains of lime and ten of sulphate of alumina. Being in proximity to an agricultural district, they hoped to dispose of the solid matter for use on the land after pressing. The storm reservoir would be nearly ten acres in extent. It would contain storm water in which there would be some amount of sewage.

After consultation Mr. Bryne said that in deference to suggestions from the Inspector it had been decided to abandon the storm water reservoir and to double the tank accommodation. The scheme would then be quite as effective, and the objection of the Cheadle and Gatley Local Board would be met.

Mr. Brown said the Local Board objected to sewage being left, particularly in hot weather, lying over a surface of ten acres, without being chemically treated.

The Inspector said that the storm water from a town like Stockport would not be pure water, and what would be left would be "a stinking morass."

Mr. Fowler said he quite agreed that an increase of tank accommodation would be better, but his object had been to reduce it to the Corporation as far as possible.

Mr. Bryne said that what the Corporation now consented to was all sewage should be chemically treated, except when diluted.

Evidence was given as to the suitability of the site for the works.

Parliamentary Jottings.

IMPORTATION OF ADULTERATED FOOD STUFFS.

IN the House of Lords on Monday, the Duke of St. Albans asked Majesty's Government whether any steps could be taken, in conjunction with foreign Governments, to check and, if possible, prevent the importation of adulterated food-stuffs consigned as pure butter, cheese, &c. He explained that at present the inspectors of the Council inspect butter at a country shopkeeper's, and, finding it adulterated, the shopkeeper is prosecuted and fined. The Duke said truly that he bought it as pure of a wholesale dealer, who then protested that he bought it as pure of the foreign merchant order to show how much more severe was the law against adulteration in France to that which prevails in this country, he mentioned the case of a butter merchant who, being convicted at the assize court of selling butter mixed with margarine as pure butter, was sentenced to three months' imprisonment, a fine of 2,000*fr.*, and the costs of the prosecution; and he was also condemned to the humiliation of publishing at his own expense the judgment in the newspapers, and paying for posters proclaiming his misdeeds exhibited outside the town-hall, the market-place, and each of his own places of business. He suggested that the simplest way to prevent the importation of adulterated butter would be by having it examined before exportation. He held in his hand an invoice for butter from Hamburg for which it was stated, was guaranteed pure, but proved that it was possible to insure that the commodity, when imported from abroad, was not adulterated. He hoped that this very question would receive the attention of her Majesty's Government.

Lord Playfair said that according to the present law articles of food were adulterated in such a way as to be detectable by the sight or smell, had to be properly described. Since 1889 a special list of such substances as imitation cheese and imitation butter had been published by the Customs, and goods coming under those heads had to be so declared. The import of them was then perfectly legal. The importation of oleo-margarine, a butter substitute, was no longer so. In 1890 three-and-three-quarter millions. But these avowed imitations, butter, cheese, lard, &c., had not succeeded in this country. The import of imitation cheese was 1,852 cwt., valued at £3,666. In 1892 it was 11 cwt., valued at £21. In 1892 the import of lard was 37,000 cwt., valued at £57,000., but that was insignificant beside the import of real lard, which was 1,239,000 cwt., valued at £2,250,000. Therefore the present law protected the consumer from gross adulterations by indicating them as imitations; but again adulteration it did not operate: for example, there was the butter from Hamburg. The Danish Government declared the butter good to the taste, and smell, and in appearance, though it contained oleo-margarine, but in such small quantities as to be undetectable by chemical analysis. Oleo-margarine was simply ox-butter in cow-butter, and 95 per cent of it was exactly the same as cow-butter. The noble duke proposed a conference with foreign nations for the purpose of preventing the export of adulterated foods. As the noble duke said, that would mean inspecting the factories abroad at which adulterated foods were produced. The corollary to that action would be (if a certain number of nations joined a convention), the hope of those nations which did not join; and the experience of the convention must have shown that it was hopeless to try such a thing. The consumer at present did not suffer much, for he got his butter 10*s.* per 100*lb.* cheaper than real butter, and it was quite as good and pleasant. Another expedient for prevention was to make the universal analyzers of all food brought into this country. The machinery of the Customs was never intended for such a purpose, nor would it be advisable to attempt it. Chemical analyses to detect adulteration would be intolerable to think of large consignments of food produce, for example, being delayed for the completion of analyses. But the Food and Drugs Act, and the Margarine Act, already protected the consumer by enabling the local authorities to prevent the sale of adulterated food. He could not hold out to the Duke any hope that the Government were likely to ask for a national convention.

resolved "That this Section is opposed to Dr. Cameron's Bill and considers that the matter can only be dealt with by means of an enquiry into the working out of the Food and Drugs Act." The Section were asked to consider whether it would wish to make any representations to the Debtors' Act Commission of the House of Lords which purposes to repeal the powers of committing small debtors to prison, but no interest was manifested in opposing this proposal.

Paper Makers' Column.

ACTION OF AIR AND SUNLIGHT ON PRINTING PAPERS FREE FROM WOOD.

HERR O. WINKLER, of the Leipzig Paper Testing Establishment, has recently made a series of investigations on the changes which various kinds of cellulose and cellulose papers undergo when exposed to the influence of the atmosphere and to sunlight. The investigations were carried out to ascertain whether unbleached sulphite cellulose turns a brown colour more easily than other fibres when exposed to atmospheric influences. The importance of this question to the paper-maker is great, because the value of a white paper depends to a large extent on its power to resist the action of sunlight and the atmosphere.

The specimens operated on were as follows:—

1. Unbleached Wood Cellulose Mitscherlich's.....O.K.
2. Do. do. Soda Cellulose1a Hh.
3. Do. do. do.1a Sh.
4. Half-bleached do. do.1a Sh.
5. $\frac{3}{4}$ do. do. do.1a Sh.
6. Bleached do. do.1a Sh.
7. Unbleached Sulphite Cellulose Mitscherlich's....S.W.
8. Do. do. do.S.K.
9. Do. do. do. do. inserted S.K.
10. Do. do. do. Ritter-KellnerI.h.
11. Bleached Straw CelluloseI h.
12. Do. do.R.
13. Paper made from80% Straw Cellulose.
.....15% Cotton do.
.....5% Wood do.
14. Paper made from50% Straw do.
.....40% Wood do.
.....10% Cotton do.
15. Bleached Sulphite Cellulose Mitscherlich.....M.

Of the above, 13 samples were wood celluloses, whilst only 2 of them were papers made from a mixture of different kinds of bleached cellulose.

It was desired to ascertain the degree to which a paper would become discoloured, that is, changed to yellowish brown, on exposing it to sunlight and air, and for this purpose strips of the paper were exposed to the sunlight, and also to the vapour of nitric acid and ammonia.

Herr Winkler's latest investigations have been carried out in the following manner:—The cuttings of the celluloses and cellulose papers were exposed for some days during the month of May to direct sunlight. Other cuttings were hung for twenty-four hours in the vapour of nitric acid, and then treated with ammonia. This is a method which the author has employed for some years for ascertaining the tendency of papers to change colour by becoming brown on exposure.

The latter test (acid and ammonia) yielded a striking result only in the case of the paper cuttings, Nos. 13 and 14; whilst not the slightest change was observed in the other instances, viz., the sample of celluloses, 1 to 12 and 15, when treated in precisely the same manner.

It was expected that the uncoloured and unsized celluloses would remain unchanged, as previous researches had established the fact that unsized and uncoloured papers, free from mechanical wood pulp, are unaltered by the acid and ammonia test.

A more or less pronounced change takes place in the whiteness of unsized papers free from wood after they are saturated with resin size, and then exposed to the alternate action of nitric acid and ammonia vapours. The presence of the size seems to degrade the colour. It has been established that atmospheric air has no influence on the colour of pure celluloses unsized and free from wood.

It is different with wood pulp and impure wood celluloses, which are changed to a brownish colour on exposure to the air and to sunlight. Such pulps yield a powerful brown colour with the acid and ammonia test even when they are wholly unsized and uncoloured. The change which takes place when papers containing wood pulp are exposed to air and light is so well known that it was not necessary to corroborate general experience on this point. But it is not so generally known that unbleached sulphite cellulose can become brown under the

same influences. The pieces of unbleached sulphite cellulose, Nos. 1 to 10, and 9 and 10, turned from a reddish white to a deep brown colour after exposure to the sunlight. The bleached sulphite celluloses, 11 and 15, also lost their white colour, assuming a yellow tint.

No great change in colour took place in the samples of unbleached soda cellulose when exposed to sunlight. The samples 2 became somewhat lighter and yellower in shade, and, therefore, cellulose in the unbleached state does not wholly resist the action of light and air. On the contrary, the samples 4 to 6, ($\frac{1}{2}$, $\frac{3}{4}$, and bleached soda cellulose) altered somewhat in shade.

The straw pulps, 11 and 12, resisted the action most perfectly, nothing of their bright white colour. The paper samples, 13 and 14, lost a little of their whiteness in the sunlight, due doubtless to the fact that they contained other materials besides straw cellulose, cotton and wood cellulose, size, etc.

These investigations have also confirmed the opinion that unbleached sulphite cellulose cannot be recommended for the manufacture of a better class of printing papers because of its liability to change in the course of time. On the other hand bleached cellulose papers, in a less degree, the property of becoming brown, and bleached pulp remains practically unchanged in colour, and can be used for best papers.

Unsized papers, by which is meant those composed of pure cellulose, do not change when exposed to the air alone when the action of light is excluded. The use of impure resin size with the pure cellulose is the cause of many papers degrading in colour.—*Papier 2*

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of March, 1893, and during the nine months ending March 31st, 1893, as follows:—The total value of the exports for March was £715,687, as against £634,885, in 1892; and for the nine months ending March 31st, £6,233,950, as opposed to £6,738,005, for same period in March 31st, 1892. The shipments were as follows:—

CRUDE PETROLEUM.		Gallons.
Total for March, 1893		10,660,841
" " 1892		4,208,841
Total for 9 months ending March 31st, 1893 ..		87,682,841
" " " 1892		80,851,941
NAPHTHAS.		
Total for March, 1893		1,479,441
" " 1892		1,028,841
Total for 9 months ending March 31st, 1893 ..		14,696,361
" " " 1892		10,945,691
ILLUMINATING.		
Total for March, 1893		57,341,731
" " 1892		42,496,361
Total for 9 months ending March 31st, 1893 ..		454,291,021
" " " 1892		412,489,951
LUBRICATING.		
Total for March, 1893		3,185,591
" " 1892		2,836,361
Total for 9 months ending March 31st, 1893 ..		25,255,201
" " " 1892		25,672,471
RESIDUUM.		
Total for March, 1893		85,591
" " 1892		44,261
Total for 9 months ending March 31st, 1893 ..		190,211
" " " 1892		348,131

DUTCH Madder.—During the last few weeks there has been considerably more demand for this article on account of the weather; the prospects for the next crop are very poor and the price prevails that prices will advance still more. The stocks of Bunge & Co., at Rotterdam, the only madder market of Holland, are insignificant, so that the time looks favourable for purchasing. Present quotations are:—Fine crop, 55s. to 56s. 6d.; small crop to 52s.; fine ombros, 47s. to 49s.; good ombros, 42s. to 44s.; ombros, 37s. to 39s.; regrounds, 30s.; mulls, 8s. to 15s. per English, and f.o.b. Rotterdam. Cash 1 per cent. discount for fourteen days.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

W. AND P.—It has been sent on.

M. BROS.—We shall be pleased to do so.

L. BROS.—Matter and block is safely to hand for which we thank you.

J. R.—The following are the numbers, 216, 217, and 218.

S. P.—You will find it in No. 245.

J. H.—We await your decision in the matter.

CEUX.—Yes. It is really vaporized into gaseous hydrocarbons. It is free from sulphur compounds, but is generally rather expensive.

LUX.—(1.) No, it is prepared by a patented process, which virtually consists in precipitating the oxides on a suitable medium, which is dried. (2.) It varies with the usage, generally stated, we should say from 800 to 1,000 hours.

Trade Notes.

CHANGE OF ADDRESS.—We learn that Messrs. Stobbs, Wilson and Pollard have removed into more commodious offices at 12, Billiter Buildings, London, E.C., where all communications should in future be addressed.

PRODUCTION OF THOMAS SLAG.—It is anticipated that when the patents for the production of Thomas steel expire in 1894, the output of phosphate slag, which is now so largely used as a manure, will experience a considerable increase. Last year 3,202,000 tons of steel were produced by this process.

THE BRITISH ASSOCIATION.—The next annual meeting of this association will be held this year at Nottingham, on Wednesday, September 13th. The President-Elect is Dr. J. S. Burdon Sanderson, M.A., F.R.S., who is professor of physiology in the University of Oxford. Particulars of local arrangements can be had from the local secretaries, Guildhall, Nottingham.

MESSRS. BLUMANN & STERN, LIMITED.—We are pleased to note that this firm, owing to their increasing business, have found it necessary to extend their works, and have removed their head offices to the works at Odessa-street, Rotherhithe, S.E. For convenience sake the city office will be continued at 43, London Wall, E.C., but all communications should be addressed to the head offices at the above address. Telephone Number, 8,092.

MALT COFFEE.—Such is the title of a new patented substance intended, we presume, to be used in the preparation of a beverage to be called by the same name. Its preparation is interesting. Malt, when ready for the kiln, is roasted in an apparatus similar to an ordinary cylindrical coffee roaster. Salad oil or other aromatic or flavouring matter may be added during the roasting operation. The roasted malt is then mixed with about twice its weight of coffee berries, and the mixture ground.

TRANSPORTING COTTONSEED OIL IN BULK.—The transportation of cottonseed oil in bulk is about to be put into practice by the American Cottonseed Oil Company, U.S.A., and a firm in Scotland is now building a tank steamer for the company for this purpose. It is pleasing to note that though specifications for this boat were submitted to American as well as British shipbuilders, the tenders from the former were some 30 per cent. in excess of that of the firm securing the contract.

IMPROVEMENTS IN WHITE LEAD MANUFACTURE.—As is well known, the process for making white lead used by the Northfleet White Lead Co. Ltd. consists in acting on litharge with acetate of ammonium. They now are able to treat their waste liquors by a patented process so as to recover the ammonia and acetic acid which they contain. The process consists of treating the liquors with slaked lime, distilling off the ammonia, which is absorbed in sulphuric acid, and evaporating the residual solution which contains calcium acetate. The sulphate of ammonium and calcium acetate so obtained are used in a subsequent operation in the manufacture of the white lead.

SOCIETY OF CHEMICAL INDUSTRY: ANNUAL MEETING.—The programme for the annual meeting of this society, which is being held at Liverpool on July 12th, 13th, and 14th, promises to be an interesting one. On Wednesday there will be the usual Council meeting, the general meeting, and President's address, followed by tea, and inspection of the University College; while in the evening there will be a conversation in the Walker Art Gallery. On Thursday visits will be made to the following places:—The United Alkali Co., Widnes; Cope's Tobacco Manufactory, Lancashire and Yorkshire Railway's Works at Horwich, the Wigan Coal and Iron Co., Liverpool Overhead Railway and generating stations, Grain Storage Co. and Docks, Liverpool Cold Storage Co., Atlantic Liners, Watch Factory, Prescott; Electrical Wire Works, Prescott. In the evening the annual dinner

will be held, at 7 30 p.m. Friday will be devoted to an excursion on the Ship Canal, followed by a smoking concert in the evening, at 9 p.m.

COOKING WITH COMPRESSED OIL GAS.—The Midland Railway Company's announcement of commencing Table d'Hôte Dinners in railway trains, both in first and third-class carriages next month, is more of a new departure than it appears to be, as the work will be done entirely by the use of compressed oil gas in cooking apparatus specially designed by Messrs. Fletcher, Russell, and Co., Limited at their Warrington house. The gas is carried in cylinders under the saloon, and it is intended to use the same fuel also for warming the carriages in winter. The use of ordinary coal gas for cooking and heating has spread rapidly for many years past, but the use of oil gas of high illuminating power for this purpose is at present very unusual, and for railway dining saloons the Midland Company has made the first successful attempt. The running trials have been made some time ago, and the whole arrangements proved quite perfect in every respect the first time the burners were lighted, although they had been designed by Messrs. Fletcher, Russell, and Co., from theoretical calculations alone.

CLAIM UNDER THE EMPLOYERS' LIABILITY ACT.—On Monday a claim for £312. damages was made at the Blackburn County Court against Messrs. Adley, Tolkien, of the Nova Scotia Chemical Works, Blackburn, by Matthew Geldart, for the death of his son, by "having on November 22nd, 1892, inhaled poisonous fumes whilst in the employ of the company." On the date just mentioned a workman named Hummer was making zinc chloride from muriatic acid and spelter, Geldart superintending the operation. Hummer, who was engaged pouring in the acid, went to wash, having come in contact with the acid. Geldart said he would pour in the acid in Hummer's absence, but after pouring in several "becks" he was overpowered by the fumes, and died five days later from arsenical poisoning. The plaintiff contended that the defendants by not having the cisterns enclosed, and the acid poured through a small aperture and a pipe into the cisterns, were liable, Mr. F. H. Tate, of Liverpool, being called to give evidence to this effect.—Mr. Sparrow, for the defendants, contended that by personally doing work which he had only to superintend the deceased had been guilty of contributory negligence.—The jury awarded the plaintiff £104.

THE NEW ENGINEERING WORKS AT MOTHERWELL.—We learn that the new firm of Messrs. Pott, Cassels, & Williamson have now completed arrangements for the acquisition of several acres of the Duke of Hamilton's property in North Motherwell, near Glasgow, for the erection of extensive engineering works and an Iron and Brass Foundry. This firm purposes undertaking a general engineering business, in addition to their specialities, which will include Weston's centrifugal machines and hydro extractors for the sugar, chemical, and textile industries. They will also supply sugar machinery generally, as used in the colonies and the refineries at home. The partners in this firm are:—Mr. Gideon Pott, late assistant manager of the well-known Glasgow firm of Messrs. Watson, Laidlaw, & Co.; the Messrs. J. H. Cassels and D. G. Cassels, the former late of the Glasgow Iron and Steel Company, and the latter late manager of the same company's works at Motherwell; and Mr. Robert Williamson, late chief of the drawing office and designing department of Messrs. Watson, Laidlaw, & Co. Arrangements have been made with the Caledonian Railway Company for a siding to be run right into the works. The works will be situated within about five minutes' walk of the Motherwell Station on the Caledonian main south line. Their Glasgow office is at 109, Hope-street.

THE BECKTON WATER GAS PLANT.—This much-talked-of plant, says a contemporary, is housed in a substantial building, and comprises twelve sets of generators after the improved Lowe pattern, each nominally capable of producing half-a-million cubic feet of gas per day. Last winter, with an inferior oil, the total output of the section was 5,000,000 per day; but the full productive duty is expected to be attained next winter from the better oil now in use, the stores for which are very prominent in the Beckton landscape. Not all the generators are now working; the make of carburetted water gas, of from 23 to 25 candle power, being about one-eighth of the total output of the station. This gas costs about 2s. per 1000 cubic feet in the holder. So far as could be seen, the working of the generators was perfect. It is ideal gas making, as compared with the ordinary process. Six-minute "blows," and gas-making, are the rule; the alternations being the work of a moment, and effected by lads with the minimum of exertion. Clinkering, which is done every twelve hours, must be much rougher work; but it is nothing like so severe a labour as tending a direct acting retort furnace of the old type. Every hour the producer is opened, and a truckload of coke tipped in, which takes a minute. The rest of the work consists in opening and closing the valves. This plant was laid down by Messrs. Humphreys and Glasgow; and it is understood that since the job was finished several small but by no means unimportant improvements have been made by them in this type of carburetted water gas apparatus.

MOISTURE IN RELATION TO CHEMICAL ACTION.—Mr. H. B. Baker, in a paper on "The Influence of Moisture in Promoting Chemical Action," read before the Chemical Society, has shown that when moisture is removed as completely as possible, certain substances, *e.g.*, carbon, sulphur, phosphorus, &c., can be heated in an atmosphere of oxygen without undergoing visible combustion; and he has since been engaged in the investigation, with the object of ascertaining in what way moisture promotes chemical action. One of the cases which he has studied is the formation of ammonium chloride from ammonia and hydrogen chloride. A difficulty presented itself at the outset in drying ammonia gas, as it is absorbed by phosphoric oxide; this was overcome by drying the gas by freshly-ignited lime, after which it was found that phosphoric oxide did not absorb any appreciable quantity. Hydrogen chloride was dried in a similar way by sulphuric acid, and finally by a week's contact with phosphoric oxide. On allowing the dried gases to mix, no ammonium chloride fumes were produced, and no contraction was indicated by the mercury gauge attached to the apparatus; and it may therefore be concluded that ammonia and hydrogen chloride do not combine when dry. On introducing a small quantity of moist air, union at once takes place. In like manner sulphur trioxide was found not to unite either with lime or barium monoxide or copper oxide. Furthermore, no brown fumes were produced on mixing dry nitric oxide with dry oxygen. The author is engaged in studying the effect of moisture on various types of chemical action, and he hopes soon to be able to communicate the results to the society.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The less said about tar products the better, especially those of the lighter order. Benzol is very dull, and prices are only nominal, which augurs ill seeing that the most limited production is at this time. Carbollic acid is the only article in good request.

The sulphate of ammonia market is very firm indeed, but we wish to sound a note of warning to makers. A strong "bull" movement has set in, and prices will apparently be driven beyond the legitimate level. Appearances indicate that an attempt will be made to corner July and August, and seeing the absence of stocks and the small quantity likely to come on the market such a scheme may be successful. It should, however, not be forgotten that there is now a difference of £4 per ton between nitrate and sulphate, a circumstance which must have an effect ultimately, and such a difference has not existed for a very long time. To-day's quotations are Beckton £12. 15s.; London £12. 10s.; Hull and Leith £12. 7s. 6d. to £12. 10s.; Liverpool £12. 10s.

REPORT ON MANURE MATERIAL.

The manure season being now practically over there has been very little business doing on spot and near at hand, but there is more disposition to buy ahead, and only higher prices demanded prevent a larger business in that position. There are sellers of 75/80% Florida phosphate rock, 1893-4 shipment, at 8½d. per unit c.i.f., in cargoes to United Kingdom, but buyers' requirements for twelve months ahead are pretty well filled at the easier prices current some months back, and they do not seem keen of making further purchases at the price now required. The nearest value of Peace River and hot air dried South Carolina River rock is probably 6½d., though for the latter ¼d. less would, in some quarters, likely be accepted. There is fair inquiry for River Plate bone ash, and £3 5s. on 70%, nett Hamburg terms, is the quotation for cargoes. There is more enquiry for cargoes of River Plate bones, and there would be large buyers for summer-autumn shipments at anything under £4. 5s., good United Kingdom ports. Shippers don't seem eager to sell even at £4. 5s., and meantime we do not hear of any transactions for United Kingdom or Continent. The United States have been buying for some months, for shipment, at up to about £4. 5s. Spot quotation for crushed East India bones is £4. 10s. per ton. For shipment £4. 5s. would have to be paid for crushed Kurrachees. The quotation for Bombay bone meal on spot is £4. 10s. ex quay, but recent arrivals hang fire at the price, the demand being practically over. For autumn shipment £4. 5s. would be submitted, but it is very doubtful whether business would result. Good charring bones are enquired for and would fetch £4. ex quay Liverpool.

Nitrate of Soda is quiet in all positions, it not yet being known what maximum quantity for shipment over all 1893 will be fixed, though it is understood that it will be appreciably over that of 1892. Hence

buyers hesitate to pay the prices required for forward shipment. The spot quotation is 8s. 6d. for ordinary, 8s. 9d. for good, and 9s. 1½d. for refined, the stock of the latter being in very small compass.

Dried blood is more enquired for, and over 9s. would now be paid for River Plate. The quotation for the home prepared is 9s. 6d. to 10s. 6d. per unit, according to quality and position of works in relation to shipping port.

MISCELLANEOUS CHEMICAL MARKET.

Trade generally continues in a fairly satisfactory condition. In bleach, sales are brisk, stimulated, no doubt, to a great extent, by the growing fear of the return of cholera abroad: £8. 10s. nett for hard-wood casks, f.o.b. is to-day's price. For home trade the demand is good at £8. rails. For forward delivery things are quiet. Soda ash still inclines in favour of buyers. Caustic soda moves well for export, but home trade orders are not over plentiful: prices are f.o.b. Tyne 77%, £11.; f.o.b. Liverpool 74%, £10. 10s.; 70% £9. 10s.; 60% £8. 10s.; cream 60% £8. 5s., 10-ton lots and upwards; 2s. 6d. per ton less at maker's works. Soda crystals dull and without change in price. The demand and price of saltcake are both in want of improvement. Chlorate of potash quoted at 8½d., but resale lots are still offering at less money. Soda sold out for some time ahead. Sulphate of copper firm at £16. 10s. f.o.b. Nitrate of soda in moderate demand at 8s. 6d. to 9s. per cwt. according to quality. Litharge is offering at low figures, but there is not much business being done. Acetates of lead (foreign) sell slowly at former prices. White powdered arsenic steady and in good request at £13. 15s. nett Garston. Yellow prussiate of potash quiet at 9½d. Carbollic acids rather stronger again, and better prices are being asked and realized.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at 41s. 4½d. cash. Middlesbrough 34s. 6d. cash, and hematite 44s. 7½d. cash. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 10s. to £44. 17s. 6d. cash, and £44. 17s. 6d. to £45. 5s. three months. Tin quiet: Straits closed at £88. to £88. 10s. cash and £86. to £86. 7s. 6d. three months. Australian £88. 10s. cash. English ingots, £91. Lead, nominal: Spanish, £9. 5s. English, £9. 7s. 6d. to £9. 10s. Silesian spelter: Ordinary, £17. 12s. 6d. Nickel, 1s. 8d. per lb. Antimony, £39. Quicksilver: First hands, £6. 17s. 6d.; second hands, £6. 16s. 6d. Copper shares steady: Cape, 1¼ to 1½. Copiapo, 2 to 2½. Libiola, 2½ to 3½. Mason and Barry, 1¾ to 2. Rio Tinto, 15½ to 15½; Tharsis, 4½ to 4½; Namaqua, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Improvement maintained. Reduced Bank rate and better Board of Trade returns are both remarked upon with satisfaction, as also are the heavy North of England shipments. Prices slightly firmer. Derbyshire pigs 40s. 6d., Northamptonshire 32s. and upwards at the stations, Lincolnshire 43s. and upwards, Staffordshire cinder pigs 34s.; all mine hot blast, 55s. 9d. to 56s. 3d.; galvanized corrugated sheets, £11., with India and the Cape buying better; plain sheets, doubles, £7; hoops in good demand for the United States, at £6. 5s.; steel angles, £5. 10s.

GLASGOW, WEDNESDAY.—Market strong, with good business. Scotch done at 41s. 4d., 41s. 5d. and 41s. 4½d. cash, also at 41s. 7d. one month; closing with buyers at 41s. 4½d. cash, sellers ask 41s. 5d. Cleveland done at 34s. 6d. cash; closing with buyers at 34s. 6d. cash, and 34s. 8d. one month, sellers ask 34s. 7d. cash. Cumberland hematite closes with buyers at 44s. 7½d. cash, and 44s. 10d. one month, sellers ask 44s. 9d. cash. Middlesbrough hematite closes with buyers at 43s. cash; sellers ask 43s. 6d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is fairly steady and has been moving pretty freely, sales having been made at £23. 15s. Lagos and Accra, £22. 10s. Olive is steady and somewhat improved, the demand being better, sales having been made at £32. 10s. to £42. per tun, according to quality. Linseed: The evidences of improvement referred to in last week's report have been fulfilled, and Liverpool makes in export casks are to-day firm at 20s. 9d. to 21s. 6d. per cwt. Cottonseed, Liverpool

refined, is unaltered at last week's quotations. Rape is quiet and slow of sale, for refined Stettin 29s. per cwt. is asked. Castor oil has been rather easier, but recent arrivals having been pretty well cleared off prices have readjusted themselves somewhat. Good seconds Calcutta is offered at 2 $\frac{3}{4}$ d. to 2 $\frac{1}{2}$ d.; first pressure French 2 $\frac{3}{4}$ d. to 2 $\frac{1}{2}$ d. per lb; Madras 2 $\frac{3}{4}$ d. to 2 $\frac{1}{2}$ d. Tallow is unaltered as regards position, North American ranges from 26s. 6d. to 27s. 6d. per cwt. Resin remains *in statu quo ante* with common 3s. 7 $\frac{1}{2}$ d. per cwt. and other grades at full figures. Spirits of turpentine have ruled steady all the week with a fair inquiry at 23s. 6d. per cwt. Petroleum quiet; American 4 $\frac{3}{4}$ d. to 5 $\frac{1}{2}$ d. according to quality; Russian refined 4d. per gallon.

COLOURS unchanged and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet, with a fair business doing. Shipments are fully up to the average. Bleaching powder continues firm at £8. 5s. per ton. Caustic soda, 76/77%, £10. 15s. to £11. per ton, according to market. Sulphur, £4. 2s. 6d. per ton. Other quotations are as follows:—

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8 $\frac{1}{4}$ d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt.—Unaltered, at 9s. 1d. per ton f.o.b. Tees.

Coals.—Trade may be said to be a little firmer. Northumbrian steam, 8s. 9d. per ton, in steady demand; second class steam, 8s. to 8s. 3d. per ton; small steam, 3s. 3d. to 3s. 6d. per ton; bunker coals, dull at 6s. to 6s. 3d. per ton, unscreened; ditto, 8s. 6d. per ton, best Durham screened; gas coals quiet, 6s. 6d. per ton; coke firm, 13s. 6d. to 14s. per ton, in better demand.

THE LIVERPOOL MINERAL MARKET.

The mineral market remains firm, with a good demand. Manganese: arrivals continue slow; demand much better, with improved prices. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) is very quiet; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Shipments are very large, and likely to increase; lump 20s., seconds 16s., thirds 12s. French chalk: The demand for "Angel White" continues to improve, and much better prices are ruling. Barytes: Carbonate scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and manganese are quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand. Chrome ore: The improvement reported last week has been well maintained. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine stromia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese improving.

Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron); finest quality 25s. to 30s.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—There is very little of a startling character moving in business circles here. Already firms are beginning to feel the effect of the half-year ending this month. Some prices have altered, which is more to be attributed to supply, rather than demand. Cotton oil refined is about 6s. per ton lower on spot, and the market closes quiet. Linseed oil has advanced with a bound 25s. per ton for spot—owing to a very limited make, though, naturally, it has not improved *pro rata* for forward deliveries—still, in these positions, prices are higher. Rape oil, too, is only in limited request, and has not maintained prices. The present quotations are:—Linseed oil, 20s. per cwt. naked has been paid for spot; July/August, 19s. 6d. to 19s. 9d.; September-December, 18s. 7 $\frac{1}{2}$ d. to 18s. 9d.; casks, 17s. 6d. per ton extra; barrels, from 22s. 6d. to 25s. extra. Cotton oil, refined, 20s. 3d. naked spot or July/August, 18s. 3d. November/April; crude, dull on spot, 17s. quoted for new oil, November/April. Rape oil, 26s., casks free. Turpentine, 22s. 9d. Olive oil, without change. Petroleum jellies, orange and red sorts, 26s. to 28s.

CAKES.—In very poor demand, and prices still moving in buyers' favour. 95 per cent. Linseed cakes, £8. 10s. to £8. 15s. per ton; July to December, £8. 10s. to £8. 15s.; Russians, £8. 10s. Cotton cakes in fair demand for time of year; best makes, £5. to £5. 2s. 6d. being required. Black Sea rape cakes, for manure, £3 10s. per ton.

PAINTS.—Business continues fairly good; also varnishes of the best makes. The demand for white lead continues highly satisfactory. Prices are:—Mixed paints, in tins of 1lb. to 14lb., 28s. to 30s. per cwt.; enamel, according to brand, 4s. 9d. per dozen (6d. size); venetian red, dry, £6. to £10 per ton; oxide of iron, dry, £9. to £18. per ton; French ochre, J.C., 55s. to 60s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The demand for general chemicals shows as yet no signs of improvement, and the market is therefore very dull. The one exception is still bleaching powder, for which there is, if anything, even a firmer call, and with the prospect of this steadiness being continued for a considerable time. Chlorate of potash is down another farthing; the other ordinary chemicals are all nominally unchanged.

In mineral oils and solid paraffins there is still only comparative lifelessness, but without any present avowed break of price. It is beginning to be foreseen, however, that burning oil will scarcely be able to maintain existing quotations by the time that contracting for next winter's consumption begins, unless some unlooked-for bit of good luck happens to the industry. The drop will probably be a farthing per gallon, possibly a halfpenny.

Sulphate of ammonia must be described as still strong and healthy, although the prompt quotation may be fractionally lower than last week. The forward figure remains shady at £11. 17s. 6d.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £5. 5s. 6d. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 5s. nett, Glasgow; caustic soda, white, 76° £10. 10s., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; Saltcake 24s; borax, English refined, £30., and boracic acid, £37. nett, Glasgow; bi-carbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2 $\frac{1}{2}$ %, Liverpool; bichromate of potash, 4 $\frac{1}{2}$ d. nett, for Scotch and English deliveries (for export, 4 $\frac{1}{4}$ d. nett f.o.b. Glasgow); bichromate of soda, 3 $\frac{3}{4}$ d. nett, for Scotch and English deliveries (for export, 3 $\frac{1}{2}$ d. nett, f.o.b. Glasgow); chlorate of potash 8 $\frac{1}{2}$ d. less 5% Liverpool; nitrate of soda 9s.; sulphate of ammonia £12. 5s. f.o.b. Leith; sal-ammoniac, first and second white, £35. and £33. less 2 $\frac{1}{2}$ % any port; sulphate of copper, £17. 5s., less 5% Liverpool; paraffin scale, hard and soft, 1 $\frac{1}{4}$ d. per lb; paraffin wax 120° semi-refined 2 $\frac{3}{4}$ d.; paraffin spirit (naphtha) 4d. a gallon; paraffin oil, burning, 4 $\frac{1}{4}$ d. to 5 $\frac{1}{4}$ d., at works, according to quality, for Scotch buyers (English sales about $\frac{1}{2}$ d. to 1d. lower); ditto (lubricating) £865° £3 15s. to £4. 885° £4. 5s. to £5. 15s., and 890/895° £5. to £6. 10s. Week's imports of raw sugar at Greenock were 24,827 bags.

New Companies.

Barnes Soap Co., Ltd.—CAPITAL £5,025. in shares of £1. each. This company has been formed to adopt an agreement with certain parties, and to carry on the business of soap boilers and manufacturers.

Adamant Stone and Paving Co., Ltd.—CAPITAL £50,000. in shares of £1. each. This company has been formed to take over the business lately carried on by the Patent Adamant Stone Co., Ltd., and to manufacture bricks, tiles, and artificial stone, compressed manure, peat, etc. The subscribers to the memorandum of association are:—C. W. Wilson, D.L., J.P., 9, Eastern Terrace, Brighton; M. J. Bury, 11, Old Broad Street, London, E.C., solicitor; G. Beeson, 2, Clarendon Terrace, London, W., solicitor's clerk; C. Lugg, Arthur's Bridge, Woking, cashier; W. H. Honeyball, 69, Porchester Terrace, London, W., accountant; A. McLean, 10, Stonor Road, London, W., manufacturer; W. Page, Waverley Grove, Hendon, London, N.W., civil engineer.

Consolidated Nitrate Co., Ltd.—Capital £160,000. in shares of £10. each. This company has been formed to purchase nitrate grounds and works, recently belonging to M. Hermann, and to acquire and work nitrate beds and iodine establishments in South America and elsewhere, and to carry on the business of exporters and dealers in iodine and sodium nitrate, etc. The subscribers to the memorandum of association are:—O. Hermann, 9, Rankestrasse, Berlin; F. d'Erlanger, 43, Lothbury, London, E.C., banker; C. C. Bowlby, 17, Fairfax Road, London, N.W., clerk; J. G. Mill, 161, Croydon Rd., Anerley, secretary; E. Mederhofheim, 178, Shaftesbury Avenue, London, W.C., clerk; M. Hargrove, Dacres Road, Forest Hill, merchant; F. A. Bowlby, 24, Manchester Square, London, W., clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTER PATENTS.

Improved Means for Destroying Insects on Trees, etc. E. A. Gardner 10,503. May 29.

Improved Apparatus for the Manufacture of Paper Pulp. 10,510. May 29.
Treating Zinc and other Ores, and the Recovery of Bye-Products. Wright and J. B. Hamond. 10,514. May 29.
Electrolytic Apparatus. H. Y. Castner. 10,584. May 30.
Improvements in Casting Slag Bricks. T. R. Dent. 10,537.
Production of Gas from Oily Refuse. E. S. Luard. 10,602.
Reducing Crude Peat to a Marketable Form. A. J. Boulton. 10,630.
Improved Paint. W. Ward and J. O. Wallace. 10,619. May 31.
Improvements in the Manufacture of Sulphuric Acid. E. E. May 30.
Separating Fatty Matters from Boiler Feed Water. J. W. 10,664. May 31.
Improved Apparatus for Collecting the Fumes from Gas I. Wainwright. 10,698. May 31.
Improved Evaporating Apparatus. E. B. Caid and T. J. May 31.
Extracting Substances by Volatile Solvents. J. Meikle, May 31.
Manufacture of Soaps Containing Sulphur in Chemical Co. Wetter. 10,707. May 31.
Obtaining Basic Lead Salts and Certain Bye-Products. Lyte. 10,713. May 31.
Secondary Voltaic Batteries. E. J. Clubbe and A. W. S. June 1.
Purifying Saccharine. J. Yate Johnson. 10,769. June 1.
Improvements Relating to the Complete Combustion of Fuels. 10,779. June 1.
Oil Purifiers. D. H. McClelland and S. W. Curriden. 10,834. June 1.
Smoke Consuming Boiler Furnaces. R. Muller. 10,844. June 1.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

R. BARTON AND T. M. ROBERTS, oil manufacturers, merchants, and the style of Barton and Roberts.
J. H. ALLBROOKE, J. HAYNES AND J. ALLBROOKE, deceased, manufacturers, under the style of Allbrooke, Haynes and Allbrooke, regards the late J. Allbrooke.
A. WASHBOURNE AND J. KING, brick and tile makers, King's Head style of Washbourne and King.
R. S. HOWARTH AND C. R. HILL, perfume manufacturers, Manchester style of the Standard Perfumery Co.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.													
Week ending June 3rd.													
Acetate of Lime—			Germany, 107	W. Harrison & Co.	Germany, 81	£2	T. H. Lee	U. States, 25					
U. States, £480		Lister & Biggs	Holland, 43	O'Hara & Hoar	Holland, 1		L. & I. D. Jt. Co.	France, 1	Herna				
Acetic Acid —			Belgium, 21	W. Fenton		13	T. Palmer	"	50	L. J.			
Holland, £10		A. & M. Zimmermann	"	75	W. Harrison & Co.	Copperas—			Denmark, 31	Bailey			
Alkali—			Caoutchouc—			Germany, £30			Germany, 2	Dunn			
Germany, 20 c.		T. H. Lee	E. Indies, 137 c.	L. & I. D. Jt. Co.	Cream of Tartar—			U. States, 55 pkgs.					
France, 220		Arnati & Harrison	"	214	France, 2 pkgs.			Gambler					
Antimony—			"	41	Italy, £20			E. Indies, 221 pkgs.					
Sydney, 10 t.		Vivian, Younger & Co.	"	65	12 pkgs.			" 1,722			L. & Adam		
France, 67 c.		B. & F. Wf. Co., Ltd.	France, 25	Kleinwort, Sons & Co.	Dextrine—			" 214					
Melbourne, 4 t.		Major & Field	Zanzibar, 4	Flageolet & Co.	Germany, £50			Indigo					
Portugal, 50		J. Bamber	Inhabane, 24	Clarke & Smith	Dyestuffs—			E. Indies, 3 chts.			F.		
Sydney, 35		W. B. Marcus	Castor Oil—			Argols			" 2		Hickie, B. & L.		
" 35		Pillow, Jones & Co.	France, 28 brls.	Fuerst Bros.	Italy, 466 pkgs.			" 66					
Arsenic—			" 18	J. Greig	" 251			Madras, 38			R. von Sta		
Germany, 10 pkgs.		L. & I. D. Jt. Co.	" 30	Lucas & Spencer's Wf.	France, 27			E. Indies, 16					
Barium Chloride—			Italy, 10 cs.	W. G. Frith & Co.	33			Myrabolams					
Germany, 24 pkgs.		Petri Bros.	" 25	Major & Field	E. Indies, 12 pkgs.			E. Indies, 1,340 pkgs.			Pe		
Barytes—			" 50	A. F. White & Co.	Cutch			" 1,334			J. I.		
Belgium, 150 bgs.		J. L. Lyon & Co.	" 10	Beresford & Co.	Extracts			" 164			Goai		
Holland, 20 cks.		Comp. Maritime Belge	Caustic Potash—			Holland, 1 pkge.			" 2,211				
" 20		J. L. Lyon & Co.	France, £40	Carey & Sons	France, 35			" 3,049			L. & Hoare		
			Chemicals (otherwise undescribed)			Austria, 300			" 200			Ander	
			Germany, 10 pkgs.	Phillipps & Graves	" 400			" 603					
			" £44	A. & M. Zimmermann									

Orchella Portugal, 350 pkgs. Prop. Bull Wf.	Paraffin Wax— U. States, 505 brls. J. H. Usmar	Ultramarine— Holland, 9 cs. Hernu, Peron & Co. " 2 cks. Philipps & Graves	Madder Amsterdam, 1 ck. Marseilles, 1 ck. J. Behrends
Saffron France, 1 pkge. G. Wheatley & Co.	Phosphate Rock— Belgium, 175 t. West & Penrose France, 44 A. Hunter & Co.	Belgium, 4 Leach & Co. Germany, 4 H. Lambert " 4 pkgs. H. Brooks & Co. Holland, 24 Steinhoff, Sons & Co. " 1 ck. G. Rahn & Co.	Saffron Valencia, 1 cs.
Sumac Italy, 100 pkgs. H. Johnson & Sons	Pitch— N. Russia, 100 brls. J. Greig " 50 J. Hunt & Son	Varnish— U. States, 2 pkgs. Magee, Taylor & Co.	Dyestuffs (otherwise undescribed) Antwerp, 3 pkgs. J. T. Fletcher & Co.
Tanner's Bark Melbourne, 53 t. Baxter & Hoare " 23 C. M. Lampson & Co.	Plumbago— Ceylon, 401 brls. J. Thredder, Son & Co. Cochin, 257 cks. Marshall & French Germany, 23 Lurty & Kissel	France, 2 L. & I. Dk Co. Germany, 30 " "	Farina— New York, 1,000 sks. Rotterdam, 50 bgs.
Adelaide, 128 Beresford & Co. E. Indies, 71 J. Smith Adelaide, 51 Baxter & Hoare " 10 C. C. Bryden & Co.	Potash— France, 150 c. Petri Bros.	Verdigris— France, 1 pkge. Hodgkinson & Co.	Glucose— New York, 649 brls.
Turmeric E. Indies, 325 pkgs. Anderson, Weber & Smith " 51 Hale & Son Hong Kong, 47 R. Warner & Co., Ltd.	Potassium Carbonate— Germany, 600 c. Pillow, Jones & Co. Holland, 100 Spies, Bros. & Co. France, 19 pkgs. Beresford & Co.	Vermillion— Hong Kong, 20 pkgs. H. A. Litchfield & Co.	Iron Chloride— Rotterdam, 1 ck.
Farina— Germany, 40 pkgs. B. & F. Wf. Co., Ltd.	Pyrates Spain, 614 t. Societe Commerciale	White Lead— France, 50 cks. W. Harrison & Co.	Nickel Oxide— New York, 25 brls. 33 cks.
Holland, 30 J. Barber & Co. " 100 J. Anderson & Co. " 30 Hicks, Nash & Co.	Quicksilver— Spain, 9,002 pkgs. N. M. Rothschild & Sons Italy, 500 flks. L. & I. D. Jt. Co.	Holland, 27 A. & M. Zimmermann Germany, 22 M. Ashby, Ltd. " 27 Burrell & Co. " 23 pkgs. H. Lambert " 22 cks. G. F. Clifford Holland, 36 W. Balchin	Nickel Sulphide— New York, 31 brls.
Glucose— U. States, 550 pkgs. 550 c. Barratt, Tagant & Co. " 75 412 Soundy & Sons " 150 150 Devitt & Hett " 250 250 J. Barber & Co.	Rosin— U. States, 500 brls. C. Tennant, Sons & Co.	Germany, 25 cks. J. Matton	Ochre— Bordeaux, 50 cks. Rouen, 86 Co-op. W'sale Society, Ltd.
Germany, 300 1,638 W. Balchin " 8 65 Prop. Chmbln.'s Wf. " 15 110 J. Knill & Co. " 20 20 Dutrulle, Solomon & Co.	Saltpetre— Belgium, 102 bgs. P. Hecker & Co. Germany, 3 Brown & Elmslie " 113 P. Hecker & Co. E. Indies, 454 Perkins & Homer " 180 C. Wimble & Co.	Holland, 100 brls. M. Ashby, Ltd. " 20 cks. Philipps & Graves " 100 pkgs. Prprs. Dowgate Dk. Germany, 25 cks. J. Matton	Paint— New York, 4 bxs. Larrinaga & Co.
U. States, 37 98 J. F. Ohlman " 650 3,580 L. Sutro & Co. " 200 1,200 Pillow, Jones & Co.	Stearine— France, 72 cs. Beresford & Co.	Zinc Oxide— Germany, 100 brls. M. Ashby, Ltd. Holland, 20 cks. Philipps & Graves " 100 pkgs. Prprs. Dowgate Dk. Germany, 25 cks. J. Matton	Phosphoric Acid— Hamburg, 12 cks.
" 50 300 Page, Son & East " 100 554 Ohlenschlager Bros. " 680 2,677 R. G. Hall & Co.	Sulphur— Italy, 50 t. G. Boor & Co. " 10 F. & L. Stizler " 20 J. Kitchin, Ltd. " 5 C. Vincent	Zinc White— Holland, 100 cks. Burrell & Co.	Potash— Hamburg, 10 cks. New York, 217 kgs. Montreal, 50 brls. Wilson, Pater-son
" 145 798 T. M. Duché & Sons " 50 300 Morton & Co. " 20 34 Dutrulle, Solomon & Co.	Tallow— New Zealand, 76 cks. Brown & Elmslie " 195 Flack, Chandler & Co. " 12 N. Z. L. & M. A. Co. Sydney, 694 J. Owen " 126 C. Hall " 418 Sollas & Sons " 12 Dangar, Grant & Co. " 479 Hoare, Wilson & Co. " 9 N. Z. L. & M. A. Co.	LIVERPOOL. Week ending June 1st.	Bremen, 15 cks. 50 dms.
Guano— Canada, 275 t. D. de Pass & Co.	" 82 Culverwell, Brooks & Co. " 101 C. J. Capes & Co. " 430 Pillow, Jones & Co. " 44 J. Greig " 616 Goad, Rigg & Co. " 539 Elkan & Co. Melbourne, 367 " " Baxter & Hoare " 36 Beresford & Co. " 47 Flack, Chandler & Co. Adelaide, 12 " " Flack, Chandler & Co.	Acetate of Lime— New York, 717 bgs. Rouen, 16 cks. Co-op. W'sale Society, Ltd.	Phosphoric Acid— Hamburg, 12 cks.
Manganese— Adelaide, 72 t. Harrold Bros.	Sydney, 126 Philipps & Graves " 24 Hicks, Nash & Co. Melbourne, 136 Philipps & Graves N. Zealand, 12 N. M. & A. Co. of N. Z.	Acetic Acid— Rotterdam, 10 ballns.	Potash— Hamburg, 10 cks.
Manganese Oxide— Germany, 4 c. H. Lambert	Sydney, 862 A. B. Curtis & Co. " 94 Aust. Meat Co. " 179 Flack, Chandler & Co. " 281 Anning & Cobb " 83 Beresford & Co. Hobson's Bay, 140 Un. Light Co. U. States, 3 brls. L. & I. Dk. Co. Melbourne, 151 pkgs. H. Lambert " 160 Ross & Deering " 120 cks. Sollas & Sons " 119 Cuthbert & Hall " 150 A. & W. Nesbitt N. Zealand, 129 Philipps & Graves Belgium, 20 pkgs. G. Haller & Co. " 10 Magee, Taylor & Co.	Alumina Sulphate— Rotterdam, 10 cks.	Salts of Tartar— Rotterdam, 10 cks.
Manure— Belgium, 50 t. Anglo-Contl Guano Wks. Germany, 140 Scrutton, Sons & Co. " 11 R. W. Greeff & Co.	Mica— U. States, £96 L. & I. D. Jt. Co.	Ammonium Sulphate— Marseilles, 9 cks.	Soap— Boston, 4 cs. J. Thompson St. Nazaire, 12 Bordeaux, 20 Marseilles, 6 G. G. Mackay " 2 Hirst, Brooks & Hirst
Nickel Ammonia— Germany, 12 pkgs. Anderson, Weber & Smith	Ochre— France, 182 cks. W. Harrison & Co. " 15 Stobbs, Wilson & Co. " 111 Z. Cartwright, Ltd. Holland, 1 cs. Philipps & Graves	Antimony— Mollendo, 185 bgs. T. Frizold Valparaiso, 352 Brownells & Co.	Sodium Acetate— Rouen, 10 cks. Co-op. W'sale Society, Ltd.
Painters' Colours— Holland, 2 cks. Via Gellia Paint Co. Germany, 12 pkgs. 1 cs. L. & I. D. Jt. Co. " 7 4 Philipps & Graves " 1 T. H. Lee France, 17 Flageolet & Co. " 16 Hernu, Peron & Co. E. Indies, 13 L. & I. D. Jt. Co. Holland, 7 Philipps & Graves " 9 cks. Magee, Taylor & Co. U. States, 6 cs. S. H. Willoughby Germany, 4 brls. Burrell & Co. " 35 pkgs. R. G. Hall & Co.	Tartaric Acid— France, 8 pkgs. G. Ward & Sons Holland, £30 Middleton & Co. " 6 B. & F. Wf. Co., Ltd. France, 4 pkgs. R. Morrison & Co.	Asbestos— Lisbon, 12 brls. Scott Bros. Quebec, 40 bgs. King Bros. & Co.	Stearine— Boston, 50 hds. New York, 20 Antwerp, 29 bgs.
	Turpentine— N. Russia, 52 brls. Chiesman & Co. U. States, 5 pkgs. McLean, Bros. & Co.	Barytes— Antwerp, 100 bgs.	Sulphur— Pomaron, 1,340 t. Mason & Barry Ltd. Huelva, 1,451 Matheson & Co.
		Caoutchouc— Valparaiso, 26 pkgs. F. M. Wolff	Tallow— Rouen, 143 bgs. 32 cks. R. J. Francis & Co. Boston, 73 hds. 83 tcs. Oporto, 19 brls. B. Ayres, 397 cks. Philadelphia, 108 hds. Rouen, 212 bgs. Co-op. W'sale Society, Ltd.
		Castor Oil— Calcutta, 131 cs.	Tartar— Bordeaux, 16 cks.
		Chemicals (otherwise undescribed) Hamburg, 1 cs. Rotterdam, 1 ck.	Tartaric Acid— Rotterdam, 12 cks.
		Colours— Bremen, 4 cks. Antwerp, 10 J. T. Fletcher & Co. " 1 brl. Rotterdam, 36 cs. 59 cks. 15 pkgs.	Ultramarine— Hamburg, 3 cks. Rotterdam, 8 3 cs.
		Cottonseed Oil— New York, 2 brls. M. Bell	Varnish— New York, 5 bxs. Larrinaga & Co.
		Cream of Tartar— Bordeaux, 10 cks. Marseilles, 3	Waste Salt— Hamburg, 102 bgs.
		Dried Blood— B. Ayres, 1,480 bgs.	White Lead— Rotterdam, 67 cks.
		Dyestuffs— Divl Divl Havre, 143 bgs. Cunard S. S. Co. Ltd.	Zinc Oxide— Rotterdam, 25 cks.
		Extracts Bordeaux, 175 cks. New York, 10 bxs. 4 brls. F. Ree " 438 T. Atkins & Co. " 5 brls. Antwerp, 12 cks. Marseilles, 200 Logwood Old Harbour, 322½ t. B. Hall & Co.	

HULL.*Week ending June 3rd.*

Alum—			
Rotterdam,	117 cks.	W. & C. L. Ringrose	
Aluminium—			
Dunkirk,	5 cs.	Wilson, Sons, & Co., Ltd.	
Arsenic—			
Hamburg,	100 kgs.	Wilson, Sons, & Co., Ltd.	
Asbestos—			
Reval,	1,001 bgs.	Wilson, Sons, & Co., Ltd.	
Flushing,	1 bl.	Wilson, Sons, & Co., Ltd.	
Barytes—			
Bremen,	24 cks.	Veltmann & Co.	
Rotterdam,	43	Hutchinson & Son	
Antwerp,	23		
Cellulose—			
Hamburg,	204 bgs.	G. Lawson & Sons	
"	98 bls.	Wilson, Sons, & Co., Ltd.	
Chemicals (otherwise undescribed)			
Bremen,	3 pks.	Veltmann & Co.	
Danzig,	2 cs.	J. Pyefinch & Co.	
Antwerp,	19 cks.	Wilson, Sons, & Co., Ltd.	
Hamburg,	33	Bailey & Leatham	
Colours—			
Rotterdam,	13 pkgs.	G. Lawson & Sons	
"	2 cs. 18	W. & C. L. Ringrose	
"	12	20 Reckitt & Sons	
Flushing,	9	34 Hutchinson & Son	
Hamburg,	13	G. Malcolm & Son	
Amsterdam,	2	J. Pyefinch & Co.	
Bremen,	3	Johnson Bros.	
"	4	Storry, Smithson, & Co.	
"	9	Sissons Bros. & Co.	
Danzig,	7		
Antwerp,	10 bls.	Wilson, Sons, & Co., Ltd.	
Dunkirk,	1		
Dextrine—			
Dunkirk,	10 cks.	Wilson, Sons, & Co., Ltd.	
Dyestuffs—			
Alizarine			
Rotterdam,	19 cks.	W. & C. L. Ringrose	
"	83	52 cs. Hutchinson & Son	
Madder			
Amsterdam,	1 ck.	Wilson, Sons, & Co., Ltd.	
Rotterdam,	2	Hutchinson & Son	
Farina—			
Stettin,	1,300 bgs.	Wilson, Sons, & Co., Ltd.	
Harlingen,	200		

Glucose—

Stettin,	25 cks.	Wilson, Sons, & Co., Ltd.	
Rotterdam,	300 bgs.	W. & C. L. Ringrose	
Ochre—			
Antwerp,	27 bgs.	Wilson, Sons, & Co., Ltd.	
Pitch—			
Dunkirk,	39 cks.	Wilson, Sons, & Co., Ltd.	
Plumbago—			
Hamburg,	9 cks.	Wilson, Sons, & Co., Ltd.	
Potash—			
Dunkirk,	9 dms.	Wilson, Sons, & Co., Ltd.	
"	24		
Quicksilver—			
Hamburg,	5 bls.	Wilson, Sons, & Co., Ltd.	
Saltetre—			
Hamburg,	4 cks.		
Stearine—			
Antwerp,	164 bgs.	Wilson, Sons, & Co., Ltd.	
Tar—			
Danzig,	2 cks.		
Tartaric Acid—			
Bordeaux,	2 cks.		
Rotterdam,	2	G. Lawson & Sons	
Turpentine—			
Libau,	50 cks.		
Bordeaux,	6 bls.		
Ultramarine—			
Rotterdam,	4 cks.	W. & C. L. Ringrose	
White Lead—			
Rotterdam,	20 cks.	Hanger, Watson, & Harris	
Zinc Oxide—			
Rotterdam,	30 bls.	Hutchinson & Son	

GLASGOW.*Week ending June 8th.*

Aniline Colours—			
Rotterdam,	19 cs. 12 cks.	J. Rankine & Son	
Aniline Oil—			
Rotterdam,	1 ck.	J. Rankine & Son	
Barium Sulphate—			
Antwerp,	400 bgs. 46 cks.		
Barytes—			
Rotterdam,	98 cks.	J. Rankine & Son	
Boracic Acid—			
Leghorn,	10 cks.		
Caoutchouc—			
Rotterdam,	1 cs.	J. Rankine & Son	

Chemicals (otherwise undescribed)

Rotterdam,	2 cs.	J. Rankine & Son	
Colours—			
Rotterdam,	10 bls.	J. Rankine & Son	
Antwerp,	2 cks.		
Hamburg,	10	4 cs.	
Rotterdam,	37 pkgs.		
Dyestuffs—			
Alizarine			
Rotterdam,	29 cks. 2 cs.	J. Rankine & Son	
"	27 pkgs.		
Cutch Extract			
Boston,	5 bls.		
Extracts			
Genoa,	26 cks.		
Antwerp,	2		
Madder			
Rotterdam,	20 cks.	J. Rankine & Son	
Sumac			
Palermo,	100 bgs. 250 bls.		
Farina—			
Stettin,	1,500 bgs.		
Hamburg,	30		
Glucose—			
New York,	10 bls.		
Iron Sulphide—			
Hamburg,	1 cs.		
Lead Acetate—			
Hamburg,	7 cks.		
Phosphates—			
Antwerp,	733 bgs.		
Beaufort, S.C.,	3,133 t.	A. Cross & Sons	
Phosphate Rock—			
Fernandina,	2,005 t.		
Potassium Cyanide—			
Antwerp,	150 cs.		
Pumice Stone—			
Messina,	87 cks. 18 bgs.		
Rosin			
New York,	939 bls.		
Saltetre—			
Hamburg,	9 cks.		
Sulphur—			
Girgenti,	300 t.		
Catania,	650 bgs. 113 bls.		
Tallow—			
Boston,	163 hhd.		
New York,	45		
Tartar			
Bordeaux,	10 cks.		
Ultramarine—			
Hamburg,	4 cks.		
Rotterdam,	4	10 cs. J. Rankine & Son	
Yarnish—			
Montreal,	5 cs.		
Waste Salt—			
Hamburg,	105 t. 1,396 bgs.		
White Lead—			
Rotterdam,	10 cks.	J. Rankine & Son	
Zinc Ashes—			
Bordeaux,	8 cks.		

TYNE.*Week ending June 3rd.*

Alum Earth—			
Hamburg,	17 cks.	Tyne S	
Ammonia—			
Antwerp,	3 bkts.	Tyne S	
Asbestos—			
Rotterdam,	6 bls.	Tyne S	
Barytes—			
Rotterdam,	163 cks.	Tyne S	
Antwerp,	111		
Colours—			
Rotterdam,	6 cks.	Tyne S	
Limestone—			
Antwerp,	3 crts.	Tyne S	
Magnesia—			
Hamburg,	1 cs.	Tyne S	
Saltetre—			
Hamburg,	12 cks.	Tyne S	
Soap—			
Rotterdam,	2 cs.	Tyne S	
Sulphur Ore—			
Pomaron,	901 t.	Mason	
Tallow—			
Hamburg,	2 trcs.	Tyne S	
White Lead—			
Antwerp,	28 bls.	Tyne S	
Zinc Oxide—			
Hamburg,	50 cks.	Tyne S	
Antwerp,	36 bls.		

GOOLE.*Week ending May 31st.*

Caoutchouc—			
Boulogne,	3 cs. 6 cks.		
Dyestuffs—			
Extracts			
Rouen,	40 cks.		
Fustic			
Jamaica,	21 t.		
Logwood			
Jamaica,	90 t.		
Dyestuffs (otherwise undescribed)			
Boulogne,	13 cs. 13 pkgs.		
Potash—			
Rotterdam,	40 cks.		
Waste Salt—			
Hamburg,	352 bls.		

GRIMSBY.*Week ending June 3rd.*

Caoutchouc—			
Hamburg,	3 pkgs. 1 cs.		
Rotterdam,	2		
Chemicals (otherwise undescribed)			
Antwerp,	7 cks.		
Hamburg,	19 pkgs.		

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.***Week ending June 7th.*

Alkali—			
Auckland,	1 t. 8 c.	£14	
Alum—			
Rabat,	6 t. 15 c.	£41	
Aluminous Cake—			
Calcutta,	45 t. 3 c.	£150	
Ammonium Carbonate—			
Bordeaux,	2 t.	£54	
Paris,	3	11 c.	95
Amsterdam,	10		13

Melbourne,	20 cs.	28	
Christiania,	10 c.	13	
Ammonium Chloride—			
Constantinople,	2 t. 10 c.	£76	
Varna,	12	20	
Melbourne,	1	1	27
Sydney,	7	4	150
Ammonium Sulphate—			
Canaria,	58 t. 10 c.	£712	
Barbadoes,	75	928	
Anhydrous Ammonia—			
Cologne,	12 cydls.	£29	

Arsenic—			
Cape Town,	2 c.	£8	
Karachi,	3 cks.	11	
Auckland,	1 t.	16	
Borax—			
Copenhagen,	17 c.	£41	
Harlingen,	2 cks.	26	
Malta,	12	20	
Montreal,	1 t.	78	
Carbolic Acid—			
San Francisco,	1 t. 8 c.	£48	
Philadelphia,	10	16	198
Rotterdam,	8 cks.	48	

Carbon Bisulphide—			
Wellington,	2 t.		
Sydney,	100 drs.		
Melbourne,	199		
Caustic Soda—			
Melbourne,	10 t. 5 c.		
Algoa Bay,	14		
Natal,	6		
Rockhampton,	2		
Auckland,	10		
Wellington,	10	5	
Dunedin,	1		
Canterbury,	1	10	
Hobart,	4		
E. London,	17		
Gibraltar,	6		

als (otherwise undescribed)

rne,	8 pkgs.	£32
rg,	1 c.	40
i,	7 cs.	24
nd,	10	18
ton,	2	11
y,	2	28
er,	1 t. 1	12

acid—

n,	1 cs.	£11
nd,	1	16
ton,	1	6
y,	2	23
rg,	2 t. 5	378
lam,	15	113
	5	38
agen,	15	113
abath,	2 kgs.	16
rne,	10	79

roducts—

ine	2 cs.	£23
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ine Dyes

	1 cs.	£34
--	-------	-----

racene

lam,	33 cks.	£260
------	---------	------

sol

rg,	20 cks.	£170
-----	---------	------

Tar Dyes

lam,	36	320
------	----	-----

ote

	4 cks.	£51
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hthaline

rne,	2 cs.	£30
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min Wax

nd,	3 tks.	£126
-----	--------	------

h

in,	16 pkgs.	£11
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ntineple,

idria,	50 brls.	19
--------	----------	----

urne,

rp,	805 t	1,006
-----	-------	-------

ork,

	500 cks.	271
--	----------	-----

Oil

	230	288
--	-----	-----

roducts (otherwise undesc'd.)

tersburg,	3 cs.	£116
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ras—

dam,	4 cks.	£12
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Sulphate—

	6 c.	£14
--	------	-----

bury,

	20 t.	374
--	-------	-----

aux,

	50	936
--	----	-----

of Tartar—

	20 kgs.	971
--	---------	-----

ectants—

ita,	41 pkgs.	£34
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ay,

	20 cks.	100
--	---------	-----

hai,

	1 t. 5 c.	13
--	-----------	----

ca,

	13	20
--	----	----

Bay,

	10 drs.	10
--	---------	----

own,

	20	40
--	----	----

y,

	145 pkgs.	96
--	-----------	----

urne,

	20 cks.	48
--	---------	----

rs of Sulphur—

ndon,	2 t. 9 c.	£28
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ulphate—

and,	5 t. 13 c.	£23
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ork,

	56 t. 6 c.	£473
--	------------	------

cia,

	30	277
--	----	-----

u,

	50	600
--	----	-----

rneau,

	4	158
--	---	-----

ts,

	290	2,900
--	-----	-------

as,

	15	164
--	----	-----

un,

	2	30
--	---	----

da,

	5	2
--	---	---

does,

	443	3
--	-----	---

rt,

	29	18
--	----	----

Nitric Acid—

Jersey,	28 cbys.	£50
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Oxalic Acid—

Melbourne,	10 c.	£14
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Phosphorus—

Hohart,	2 c.	£55
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Potash Salts—

Auckland,	10 t.	£1,200
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Potassium Bichromate—

Auckland,	15 c.	£31
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Potassium Chlorate—

Melbourne,	10	26
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Saltpetre—

New York,	10 t. 17 c.	£548
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Sheep Dip—

Santos,	6 t. 14 c.	£150
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Soda Ash—

Gothenburg,	1	21
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Soda Crystals—

Melbourne,	1	23
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Soda Salts—

Oporto,	1	23
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Sodium Acetate—

Sydney,	5	110
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Sodium Bicarbonate—

Natal,	1,000 drs.	£213
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Sodium Carbonate—

Wanganui,	9 c.	15
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Sodium Sulphide—

B. Ayres,	1,990 cs.	5,970
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Sodium Sulphate—

E. London,	500	297
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Sodium Sulphide—

Algoa Bay,	610	148
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Sodium Sulphide—

Hobart,	4 t.	£22
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Sodium Sulphide—

Melbourne,	10	54
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Sodium Sulphide—

Cape Town,	1	6 c.
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Sodium Sulphide—

E. London,	1	6
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Sodium Sulphide—

Brussels,	2 cs.	£13
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Sodium Sulphide—

Sydney,	2 t. 11 c.	£69
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Sodium Sulphide—

Auckland,	1 t. 5 c.	£9
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Sodium Sulphide—

Barbadoes,	10 c.	£4
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Sodium Sulphide—

Hobart,	1 t.	8
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Sodium Sulphide—

Sydney,	2 t. 14 c.	£25
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Sodium Sulphide—

New York,	5 t. 1 c.	£127
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Sodium Sulphide—

Melbourne,	10 t.	£83
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Sodium Sulphide—

Cape Town,	1	800 cks. 300 kgs.
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Sodium Sulphide—

Cape Town,	15 c.	£8
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Sodium Sulphide—

Cherbourg,	175 t.	£525
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Sodium Sulphide—

Canaria,	22	10 c.
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Sodium Sulphide—

Natal,	3 c.	£15
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Sodium Sulphide—

Auckland,	5	30
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Sodium Sulphide—

Bombay,	10 cs.	43
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Sodium Sulphide—

Yokohama,	1 t.	101
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Sodium Sulphide—

Karachi,	10	54
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Sodium Sulphide—

Sydney,	10	52
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Sodium Sulphide—

Lyttelton,	10	55
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Sodium Sulphide—

Westport,	1	6
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Sodium Sulphide—

Calcutta,	5	30
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Sodium Sulphide—

Melbourne,	2	199
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Sodium Sulphide—

Dunedin,	26	26
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LIVERPOOL.

Week ending June 7th.

Acetic Acid—

Lisbon,	2 t. 6 c. 1 q.	£28
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Alkali—

Bombay,	1 t. 15 c.	£5
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Alum—

Ibrail,	6 t. 10 c.	£41
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Ammonium Carbonate—

Oporto,	4	21
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Ammonium Carbonate—

Bombay,	10	6
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Ammonium Carbonate—

Beyroul,	6	16
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Ammonium Carbonate—

Hamburg,	1 t.	£28
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Ammonium Carbonate—

Oporto,	13 c.	18
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Ammonium Carbonate—

Rotterdam,	1	3 q.
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Ammonium Carbonate—

Genoa,	1	28
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Ammonium Chloride—

Galatz,	1 t. 2 c. 3 q.	£38
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Ammonium Chloride—

Vera Cruz,	7	11
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Ammonium Chloride—

Philadelphia,	15	13
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Ammonium Chloride—

Smyrna,	1	16
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Ammonium Sulphate—

New York,	24 t. 9 c.	£320
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Ammonium Sulphate—

Montreal,	5	2 q.
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Ammonium Sulphate—

Antwerp,	47	540
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Ammonium Sulphate—

Las Palmas,	24	2
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Ammonium Sulphate—

Nantes,	19	18
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Ammonium Sulphate—

Gr. Canary,	50	16
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Ammonium Sulphate—

Pekalongan,	60	2
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Ammonium Sulphate—

Barbadoes,	193	5
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Ammonium Sulphate—

Boston,	1	3
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Ammonium Sulphate—

Valencia,	174	13
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Ammonium Sulphate—

Bombay,	2 cks.	2,112
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Antimony Salts—

Bombay,	2 cks.	2,112
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Asbestos—

Bombay,	2 cks.	2,112
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Bleaching Powder—

Bombay,	2 cks.	2,112
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Magnesium Sulphate—

Bombay, 100 bgs. 8 pkgs.

Manure—

Las Palmas, 28 t. 11 c. £74
 Messina, 5 40
 Havre, 50 4 1 q. 359
 Valencia, 213 1,251
 St Nazaire, 175 1 2 507
 Marseilles, 25 1 69

Metallic Sodium—

Rotterdam, 4 t. 6 c. £570

Nitrate of Lead—

Victoria, B.C., 1 t. 2 c. 2 q. £22

Oxalic Acid—

Trieste, 1 t. 1 q. £27

Paint—

Algoa Bay, 2 cks.
 Calcutta, 94 kgs.
 Caracas, 45
 Coroneel, 167
 Frontera, 4
 Ghent, 11
 Havana, 12
 Kingston, Jam., 5
 Lisbon, 6 102 20 dms.
 New York, 20 144 5 cs.
 Oporto, 20 4
 Port Said, 6 66
 Rosario, 51
 St Johns, Nfld., 5 20 30

Savannah, 30
 Trieste, 50 pkgs.
 Yokohama, 10
 Gibraltar, 19 pkgs. 7 5 brls.
 Hamburg, 570
 Para, 10 29 51 9
 Rio de Janeiro, 2 4
 Salaverry, 2 60
 Smyrna, 5
 Syra, 5
 Talcahuano, 35 cs.
 Teneriffe, 2 2 2
 Toronto, 40 20 10 10
 Bilbao, 12
 Cavite, 45
 Colombo, 5 10
 Genoa, 320
 Hong Kong, 320
 Manaoas, 12
 Matanzas, 10
 Melbourne, 5 t. 7 c.
 Sierra Leone, 30
 Valparaiso, 152 cks. 50
 Victoria, B.C., 3

Painters' Colours—

Accra, 8 cs. 3 dms.
 Amsterdam, 50 bgs.
 Antwerp, 5 cks. 48 kgs. 9 pkgs.
 Bilbao, 24
 Brass, 10
 B. Ayres, 90 85 brls.
 Colon, 3
 Copenhagen, 10
 Galatz, 10 50
 Gothenburg, 10 60 bgs.
 Halifax, 13 5 dms.
 Lisbon, 2
 Montreal, 20 3 6
 Odessa, 101
 Para, 3 6
 Pernambuco, 50
 Alexandria, 76
 Bombay, 10 112
 Busreh, 100
 Cienfuegos, 13 1 pkg.
 Hamburg, 13 12 dms.
 Havre, 21 205
 Honolulu, 21 2
 Havana, 2 tcs. 12 7
 M. Video, 6 cs. 21 2
 Arica, 8 110 81 pkgs
 Belize, 10
 Bermuda, 4
 Boston, 4
 Calcutta, 17
 Cartagena, Sp., 4 25 f.kns. 11
 Maranhham, 6
 Nassau, 3
 San Francisco, 3

Paraffin Wax—

Palermo, 5 cs.
 Batoum, 9
 Smyrna, 5 5 bgs.

Phosphorus—

Mexico, 11 cs. £134
 M. Video, 4 44
 Yokohama, 10 129
 Hong Kong, 2 26

Picric Acid—

Rangoon, 16 c. £51

Potassium Bicarbonate—

Vera Cruz, 5 c. £14

Potassium Bichromate—

Rio de Janeiro, 14 c. 1 q. £31

Potassium Carbonate—

Rio de Janeiro, 9 c. 3 q. £10

Potassium Chlorate—

Philadelphia, 3 t. 5 c. £241

Riga, 1 10 78
 Genoa, 10 28
 Montreal, 10 28
 Rotterdam, 1 5 84
 Gothenburg, 10 32
 Mexico, 15 58
 Higo, 5 15 392
 Antwerp, 1 77
 Hamburg, 2 112
 Porto Alegre, 1 10 101
 Dunkirk, 2 6
 New York, 8 10 565
 Kobe, 1 56
 Lisbon, 5 14

Potassium Stannate—

Bombay, 1 t. 2 c. £87

Rosin—

Constantinople, 20 brls.

Hamburg, 61

Salt—

Akassa, 400 t.
 Archangel, 644
 Benin, 10
 Benny, 35
 Boston, 925
 Cabenda, 48
 Canada, 430
 C. C. Castle, 17 10 c
 Halifax, 11
 Honolulu, 10
 Landana, 114 7
 Loango, 54 8
 Montreal, 1,181 12
 Noqui, 62 10
 North Sydney, 600
 Old Calabar, 56 5
 Para, 275
 Rio de Janeiro, 2 3
 Salt Pond, 20
 Sette Cama, 8
 Talcahuano, 2 3
 Trangesund, 650
 Viborg, 630
 Vigo, 2
 Alligator Pond, 5 4
 Antwerp, 320
 Belem, 808 18
 Belize, 20
 Black River, 9 15
 Calcutta, 5,510
 Cape Town, 25
 Ghent, 250
 Havrefjord, 126
 Quebec, 12 10
 Rotterdam, 295
 St. John's, Nfld., 10
 Sierra Leone, 400
 Sydney, 27 3
 Trinidad, 13
 Algoa Bay, 53 17
 Baltimore, 250
 Banana, 8 18
 Boma, 100
 B. Ayres, 8
 Buguma, 10
 E. London, 8 18
 Musuca, 100
 New York, 59 10
 Nokki, 300
 Pt. Elizabeth, 9
 Pt. Natal, 20
 Quebec, 455 5
 Rangoon, 1,970
 Reykjavik, 108 10
 Schelpino, 400
 Shediak, 209 18
 Stockholm, 147 11
 Tuborg, 579
 Vancouver, B.C., 150 t.

Saltcake—

Ghent, 120 t. £166

Saltpetre—

Alexandria, 1 t. £22
 Las Palmas, 4 84
 Rosario, 19 c. 2 q. 21
 Boca, 4 3 5
 Pernambuco, 5 14 1 129
 Para, 1 21

Sheep Dip—

Punta Arenas, 60 cks. £360
 Cape Town, 17 c. 3 q. 30

Soap—

Barbadoes, 450 bxs.

Belize, 1,399

Genoa, 320 10 cs.
 Panama, 5
 Pernambuco, 1
 Rotterdam, 390
 St. John's, Nfld., 75 6
 Savanilla, 200 4
 Trinidad, 200
 Alexandria, 4 4 12 brls.
 Algoa Bay, 2,614 69
 Amsterdam, 99 35
 Annatto Bay, 40
 Antwerp, 100
 Calcutta, 12
 C. C. Castle, 135 5
 Cape Town, 4,425 14
 Drewin, 112
 E. London, 2,026 75
 Esquimalt, 31
 Ferrol, 10
 Hong Kong, 400
 Kingston, J.A., 2,125
 Kurrachee, 70
 Leghorn, 1
 Little Popo, 25
 Monrovia, 42
 Montego Bay, 140
 Morant, 100
 Mossel Bay, 78
 New York, 175 51 1 ck. 100 pkgs.
 Oporto, 6,250 1
 Port Antonio, 55
 " Elizabeth, 1,020
 " Natal, 1,501
 " Said, 20
 Quebec, 1
 Rangoon, 500 55
 St. Anne's Bay, 60
 St. Thomas, 400
 Shanghai, 5,130
 Sierra Leone, 5
 Singapore, 170
 Arica, 2
 Acim, 3
 Benin, 100
 Bombay, 1,975 71
 Cairo, 20
 Curacao, 60
 Gibraltar, 50
 Guayaquine, 30
 Honolulu, 50
 Jersey, 21
 Madras, 6
 Malta, 25
 Mauritius, 110
 Nassau, 10
 Natal, Brazil, 100
 New Orleans, 73
 Rio de Janeiro, 2
 St. Nazaire, 4
 Toronto, 750
 Valparaiso, 50
 Warri, 200
 Zanzibar, 15

Soda—

Bombay, 50 bgs.

Soda Alkali—

Leghorn, 40 brls.
 Melbourne, 40
 Messina, 15
 Smyrna, 53
 E. London, 12 c.

Soda Ash—

Antwerp, 2 cks. 131 bgs.
 B. Ayres, 180 brls.
 Cadiz, 2
 Calcutta, 90 20 100 pkgs.
 Callao, 20
 Corfu, 400
 Genoa, 31
 Gothenburg, 14 500 bgs.
 Higo, 10
 Leghorn, 10
 Montreal, 130
 Oporto, 22
 Patras, 30 1,840
 Philadelphia, 856 50
 Rio Grande, 285
 Rotterdam, 250
 Sherbrooke, 96
 Venice, 17 100
 Vigo, 19
 Yokohama, 127 100
 Batavia, 48
 Maranhham, 86
 Pt. Elizabeth, 86 40 kgs.
 Samarang, 10
 Symrna, 50
 Adelaide, 83
 Baltimore, 639 1,934
 Boston, 562 1,368
 Cartagena, Sp., 10
 New York, 814 2,876 400
 Sydney, 4
 Toronto, 10

Soda Crystals—

Alexandria, 20 brls.
 Algoa Bay, 15 kgs.
 Boston, 947
 Constantinople, 127
 Honolulu, 55
 Malta, 50
 Markham, 20
 Montreal, 134
 New York, 150 cks.
 Oporto, 11
 Philadelphia, 374
 Port Natal, 20
 Quebec, 334
 Valparaiso, 50
 Waterloo, Ont., 100
 Calcutta, 30
 Cape Town, 25
 Halifax, 170
 S. John's, N.B., 189 25 19
 Samarang, 66
 Gibraltar, 67
 Stockholm, 1

Sodium Arseniate—

Boston, 6 cks.

Sodium Borate—

Yokohama, 50 cs.

Havre, 50

New York, 5 brls.

Stockholm, 7 cks.

Sodium Bicarbonate—

Antwerp, 178 kgs. 24 cks.

Barcelona, 100

Bo-deaux, 10 5 brls.

Brantford, 50

Calcutta, 1,110

Catania, 30

Constantinople, 90

Marseilles, 155

Messina, 20

Montreal, 345

Nantes, 10

Newfairwater, 9

Rangoon, 50

Rotterdam, 154

St. Petersburg, 100

Toronto, 150

Bombay, 700

Cape Town, 26

E. London, 10

Halifax, 285

Havre, 80

Kurrachee, 250

Malta, 7

Melbourne, 340 4

M. Video, 50

Odessa, 100

Para, 10

Piraeus, 4 8

Pt. Elizabeth, 60

S. John's, N.B., 575

Samarang, 5

Santos, 1

Seville, 70

Genoa, 150 37

Havana, 25

Manila, 3

New York, 250

Trieste, 60 4

Sodium Carbonate—

Yokohama, 50 cs. 315 dms.

New York, 140 brls.

Sodium Chlorate—

Hamburg, 250 kgs. 10 brls.

Antwerp, 20

Rotterdam, 10

St. Petersburg, 40

Sodium Hyposulphite—

Montreal, 45 kgs.

Sodium Silicate—

B. Ayres, 7 cks.

Ibrail, 20

Montreal, 126

Oporto, 16 10 brls.

Barcelona, 35 285

Ghent, 4

Montery, 31

Seville, 30

Sodium Sulphate—

Bombay, 50 bgs.

Santos, 1 ck.

Sodium Tartrate—

Montreal, 1 ck.

Spent Oxide—

Dantrie, 638 t.

Sulphate of Lime—

New York, 1 t. 15 c.

Sulphur—

Alexandria, 3 t. 17 c. 31

Maranhham, 5 3

Boston, 305 7

Kustendjie, 4

Calcutta, 2 5

Callao, 1 4 3

Gold—	6 c.	£6
Gold—	c.	£7
—	1 cs.	
—	1 cs.	
—	1 kg.	
—	4 cks.	
—	4	
—	14	
—	4 dms.	
—	1	
—	2	
—	3	
—	3	
—	2	
—	20 dms.	
—	11 t. 2 c.	£64
—	5 15	93
—	C. 5 t. 17 c. 2 q.	£119

HULL.

ending June 3rd.

Sulphate—

85 bgs.

85

1 cs.

da—

15 dms.

rg, 16 cks.

(otherwise undescribed)

2 cks.

20 cks.

2 cks.

3 cs. 5 pkgs.

ple, 150 cks.

1, 1 cs. 80 pks.

1, 41 55

1, 1 ck.

5

311 34 cks. 46 pks.

556 cks.

48 20 cs 11 pkgs.

56

urg, 113

1 Oil—

240 c.

ple, 69

1, 101

1, 100

1, 959

683

1, 150 cks.

650

(otherwise undescribed)

1 bl.

1 ck.

1 cs.

urg, 200 bgs. 43 cks.

Oil—

140 c.

569

n, 41

n, 172

1, 17

30 cks.

9

Colours—

1, 11 cks.

73 7 cs.

5

10 40 dms. 1 pkgs.

ind, 56 1 cs. 95

n, 2 3 6 dms.

g, 2 12

10 3 2

5 7 4 pks.

292 8 2 12 dms.

37 2 2 1

urg, 422 3 cs. 11 pkgs. 1 dm.

da, 25 t.

300 cks.

Salt—		
Copenhagen,	5 t.	
Onundarfjord,	43	
Soap—		
Antwerp,	160 cs.	
Christiania,	60	
Tar—		
Amsterdam,	111 cks.	
Copenhagen,	20	
Gothenburg,	2	3 cs.
Hamburg,	22	
Odessa,	250	
Reval,	20	
Rotterdam,	30	
Varnish—		
Amsterdam,	1 cs.	
Bergen,	1 ck.	
Gothenburg,	2 cs.	
Hamburg,	2 cks.	

GLASGOW.

Week ending June 8th.

Acid—		
Bombay,	328 t.	£1,800
Ammonium Sulphate—		
Nantes,	19 t. 16½ c.	£240
Trinidad,	50	600
Demerara,	100 8½	1,211
Valencia,	234 12½	£2,672. 115.
Asbestos—		
Calcutta,		£63
Boric Acid—		
Japan,	2 t. 11 c.	£84
Borax—		
Japan,	3 t. 7½ c.	£88
Rouen,	2 2½	£63. 175.
Carbolic Acid—		
Philadelphia,	5 t. 13 c.	£102
Riga,	160 cks.	180
Caustic Soda—		
Calcutta,	41 t. 5 c.	£373
Demerara,	3 11	34
Montreal,	5 17½	50
Coal Products—		
Aniline		
Calcutta,		£24
Cresote Oil		
Boston,	21 t. 4 c.	£59
Naphtha		
Dieppe,	5 t.	£55
Pitch		
Calcutta,		£312
Philadelphia,	61 t. 8 c.	105
Bombay,		99
Gothenburg,	73 11½	192
Boston,	52 2	75
Rochelle,	250	250
Dieppe,	290	435
New York,	64 11	103
Tar		
Bombay,		£36
Riga,	200 brls.	100
Calcutta,	57 t. 12½ c.	180
Coal Products (otherwise undes.)		
Dieppe,	47 t. 10 c.	£675
Copperas—		
Bombay,		£34
Cottonseed Oil—		
Rotterdam,	12 t. 13 c.	£350
Dyestuffs—		
Extracts		
Valencia,	3 t. 13½ c.	£63
Montreal,	6 1½	193
Fustic Extract		
Montreal,	2 t. 16½ c.	£113
Logwood		
Valencia,	4 t. 16½ c.	£46
Stockholm,	5½	5
Glucose—		
Cape Colony,	2 t. 6½ c.	£31
Guano—		
Valencia,	5 t. 19½ c.	£45
Lead Acetate—		
Bombay,	4 t. 13½ c.	£70
Linseed Oil—		
Halifax,	3 t. 5½ c.	£59. 125.
Chili,	16½	20 10
Montreal,	12 16½	£278
Cape Colony,	3 18½	104
Litharge—		
Bombay,	1 t 13½ c.	£21
Manure—		
Barbadoes,	96 t. 19½ c.	£1,173
Valencia,	17 14½	142
Nitrate of Lead—		
Rouen,	5 t. 4½ c.	£100
Ochre—		
New York,	1 t. 15 c.	£24

Paint—		
Japan,	2 t. 10 c.	£39
Calcutta,	18 10½	271
Chili,	1 1½	£24. 108.
Calcutta,		£156
Bombay,	9 7½	80
Alexandria,	1 8½	30
New York,	8 17½	169
Painters' Colours—		
Colombo,		£35
Bombay,	5 t. 8½ c.	54
Cape Colony,		190
Paraffin Wax—		
Riga,	25 bgs.	£81
Nantes,	12½ c.	21
Valencia,	5 t. 1½	128
Italy,	12 13½	323
Hungary,	1 18½	60
Stockholm,	14	20
Cape Colony,	6 4½	188
Bayonne,	2 1	70
Rouen,	3 8½	90
Potassium Bichromate—		
Japan,	5 t. 8½ c.	£201
Gothenburg,	5 3	200
Antwerp,	2 1½	82
Valencia,	18 18½	753
Italy,	2 4	90
Stockholm,	5 2½	192
Rouen,	7 10½	318
Potassium Prussiate—		
Rouen,	5 t. 7½ c	£320. 165.
Rosin Oil—		
Rotterdam,	10 brls.	£20
Cape Colony,	18 t.	120
Soap—		
New York,	7 t. 16 c.	£158
Cape Colony,	1	25
Soda Ash—		
New York,	25 t.	£112
Sodium Bichromate—		
Antwerp,	2 t. 16½ c.	£92
Valencia,		116
Italy,	11 1½	362
Rouen,	50 1	1,057
Sodium Nitrate—		
New York,	4 t. 19½ c.	£46
Sulphuric Acid—		
Colombo,	8 t. 5 c.	£96
Madras,	19	21
Varnish—		
Cape Colony,		£46
White Lead—		
Halifax, N.S.,	21 t. 15½ c.	£262
Montreal,	9 15	167
Seville,	4 13½	70
Cape Colony,	1 15	35

TYNE.

Week ending June 3rd.

Alkali—		
Antwerp,	2 t. 9 c.	
Gefle,	1 6	
Ammonia Alkali—		
Newfairwater,	100 t. 8 c.	
Copenhagen,	10	
Ammonium Chloride—		
St. Petersburg,	10 t. 18 c.	
Arsenic—		
Venice,	4 t 13 c.	
Barytes—		
Hamburg,	28 t.	
Blanc Fixe—		
Antwerp,	1 t. 1 c.	
Bleaching Powder—		
Norrkoping,	18 c.	
Hamburg,	18 t.	
St. Petersburg,	47 4 c.	
Antwerp,	40 13	
Christiania,	29 4	
Rotterdam,	23	
Venice,	5	
Gothenburg,	10 15	
Newfairwater,	30 2	
Konigsberg,	10 1	
Drontheim,	10	
Stockholm,	6 11	
Gefle,	20 2	
San Francisco,	14 7	
Caustic Soda—		
Archangel,	3 t. 8 c.	
Hamburg,	6 7	
Antwerp,	15 1	
St. Petersburg,	209 3 c.	
Rotterdam,	27 5	
Venice,	32 5	
Newfairwater,	4 18	
Stockholm,	3	
San Francisco,	87 1	
Copenhagen,	1 14	

Colours—		
Copenhagen,	3 t. 11 c.	
Copper Sulphate—		
Venice,	25 t. 16 c.	
Farina—		
Bergen,	4 t.	
Litharge—		
Norrkoping,	11 c.	
Hamburg,	2 t. 9	
Magnesia—		
Hamburg,	1 c.	
Antwerp,	2	
Stockholm,	1 t. 11	
Ochre—		
Christiania,	16 c.	
Paint—		
Ergasteria,	23 c.	
Antwerp,	11	
Painters' Colours—		
Archangel,	1 t. 12 c.	
Soda—		
Norrkoping,	44 t. 1 c.	
Rotterdam,	25 2	
Gothenburg,	3 15	
Bergen,	5 18	
Horsens,	7	
Stubbekjobing,	80	
San Francisco,	156	

Soda Ash—		
Ergasteria,	12 c.	
Christiania,	3 t. 17	
Venice,	63 15	
Newfairwater,	30 6	
Konigsberg,	91 6	
Copenhagen,	20 2	
Sodium Hyposulphite—		
Antwerp,	5 t. 2 c.	
Sodium Sulphate—		
Aarhus,	1 t. 6 c.	
Newfairwater,	20	
Konigsberg,	12 10	
Sulphate of Lime—		
Venice,	2 t. 14 c.	
Sulphur—		
Antwerp,	15 t.	
Gothenburg,	40	
Drontheim,	50	
Tallow—		
Hamburg,	1 t. 1 c.	
Tar—		
Copenhagen,	10 t. 17 c.	
White Lead—		
St. Petersburg,	2 t. 5 c.	
Stockholm,	5 7	
Stubbekjobing,	1 3	
Copenhagen,	1 7	

GOOLE.

Week ending May 31st.

Benzol—		
Boulogne,	73 cks.	
Chemicals (otherwise undescribed)		
Hamburg,	5 cks. 6 dms.	
Rouen,	4	
Rotterdam,	67	
Coal Products (otherwise undes.)		
Ghent,	36 cks.	
Hamburg,	1 cs.	
Rotterdam,	101	
Dyestuffs (otherwise undescribed)		
Hamburg,	3 cks. 2 pkgs. 66 bgs.	
Manure—		
Boulogne,	297 bgs.	
Hamburg,	13 cks.	
Rotterdam,	200 bgs.	
Pitch—		
Antwerp,	107 t.	
Calais,	120	

GRIMSBY.

Week ending June 3rd.

Chemicals (otherwise undescribed)		
Dieppe,	cs. 88 pkgs. cks.	
Hamburg,	2 88	
Coal Products (otherwise undes.)		
Dieppe,	215 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	1 ck.	

PRICES CURRENT.

WEDNESDAY, JUNE 14

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities***Acids:—**

	£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 10/6
" Glacial	"		50/-
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
" (Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1½
Oxalic	nett	0	0 3
Phosphoric, 1750°	"	0	1 2½
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" " 150°	"	1	5 0
" " (free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	"	0	0 11½
Arsenic, white powdered	nett per ton	14	0 0
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferic	"	2	10 0
Aluminium	per lb.	0	4 0
Ammonia, Anhydrous	"	0	1 2
" 880=28°	per lb.	0	0 2½
" =24°	"	0	0 1½
" Carbonate	nett	0	0 3½
" Muriate	per ton	20	0 0
" " (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
" Nitrate	per ton	39	0 0
" Phosphate	per lb.	0	0 10½
" Sulphate (grey) London	per ton	12	10 0
" " (grey) Hull	"	12	8 9
Aniline Oil (pure)	per lb.	0	0 6½
Aniline Salt	"	0	0 6½
Antimony	per ton	45	10 0
" (tartar emetic)	per lb.	0	1 0
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	8	0 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 2
Benzol, 90 % nominal	per gallon	0	1 5
" 50/90	"	0	1 4
Carbolic Acid (crystallised 40°)	per lb.	0	0 7½
" (crude 60°)	per gallon	0	2 5
Creosote (ordinary)	"	0	0 1
" (filtered for Lucigen light)	"	0	0 1½
Crude Naphtha 30 % @ 120° C.	"	0	0 7½
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	"	1	5 0
Solvent Naphtha, 90 % at 160°	per gallon	0	0 11
"Lucigen" and "Wells" Oils	"	0	0 1½
Copper	per ton	44	10 0
" Sulphate	"	16	10 0
" Oxide (copper scales)	"	42	0 0
Glycerine (crude)	"	13	0 0
" (distilled S.G. 1250°)	"	43	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	12 6
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	10	10 0
" Litharge Flake (ex ship)	"	13	0 0
" Acetate (white	"	25	15 0
" " brown	"	17	10 0
" Carbonat: (white lead) pure	"	20	0 0
" Nitrate	"	20	0 0

Lime, Acetate (brown)	per ton		
" " (grey)	"		
Magnesium (ribbon and wire)	per oz.		
" Chloride (ex ship)	per ton		
" Carbonate	per cwt.		
" Hydrate	per ton.		
" Sulphate (Epsom Salts)	per ton		
Manganese, Sulphate	"		
" Borate	per cwt.		
" Ore, 70 %	per ton		
Methylated Spirit, 61° O.P.	per gallon		
Naphtha (Wood), Solvent	"		
" Miscible, 60° O.P.	"		

Oils:—

Cotton-seed	per ton	2	
Linseed	"	2	
Lubricating, Scotch, 890°—895°	"		
Petroleum, Russian	per gallon		
" American	"		
Potassium (metal)	per oz.		
" Bichromate	nett per lb.		
" Carbonate, 90% (ex ship)	per ton	17	
" Chlorate	per lb.		
" Cyanide, 98%	"		
" Hydrate (Caustic Potash) 80/85 %	per ton	21	
" " (Caustic Potash) 75/80 %	"	20	
" " (Caustic Potash) 70/75 %	"	20	
" Nitrate (refined)	per cwt.	1	
" Permanganate	per cwt.	3	
" Prussiate Yellow	per lb.	0	
" Sulphate, 90 % (ex ship)	per ton	9	
" Muriate, 80 % (do.)	"	8	
Silver (metal)	per oz.	0	
" Nitrate	"	0	
Sodium (metal)	per lb.	0	
" Carb. (refined Soda-ash) 48 %	nett per ton	6	
" " (Caustic Soda-ash) 48 %	"	4	
" " (Carb. Soda-ash) 48 %	"	4	
" " (Carb. Soda-ash) 58 %	"		
" " (Soda Crystals)	"		
" Acetate (ex-ship)	"	10	
" Arseniate, 45 %	"	1	
" Chlorate	per lb.		
" Borate (Borax)	net, per ton.	2	
" Bichromate	per lb.		
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	per ton	1	
" " (74 % Caustic Soda)	"	1	
" " (70 % Caustic Soda)	"		
" " (60 % Caustic Soda)	"		
" " (60 % Caustic Soda, cream) (f.o.b.)	"		
" Bicarbonate	"		
" Hyposulphite	"		
" Manganate, 30%	"	1	
" Nitrate (95 % ex-ship Liverpool)	per cwt.		
" Nitrite, 98 %	per ton	2	
" Phosphate	"		
" Prussiate	per lb.		
" Silicate (glass)	per ton		
" " (liquid, 100° Tw.)	"		
" Stannate, 40 %	per cwt.		
" Sulphate (Salt-cake)	per ton.		
" " (Glauber's Salts)	"		
" Sulphide	"		
" Sulphite	"		
Strontium Hydrate, 100%	"		
Sulphocyanide Ammonium, 95 %	per lb.		
" Barium, 95 %	"		
" Potassium	"		
Sulphur (Flowers)	per ton.		
" (Roll Brimstone)	"		
" Brimstone: Best Quality	"		
Superphosphate of Lime (26 %)	"		
Tallow	"	2	
Tin (English Ingots)	"	9	
" Crystals	per lb.		
Zinc (Spelter)	per ton	1	
" Chloride (solution, 96° Tw.)	"		

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

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SATURDAY, JUNE 24, 1893.

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CURRENT TOPICS.

COMPETITION IN THE COAL TRADE.

THERE is nothing very startling in the announcement of competition in the coal trade, any more than in other trades, in fact it would be much more startling if we could name the trade or industry in which competition was at the present day a thing unknown.

Competition in moderation is a healthy stimulant, but the extent to which it is being carried on in the particular industry we have mentioned gives a colouring to the prospective situation, which is certainly not of a rosy hue, to say the least of it.

The present time of the year is that at which nearly all the large contracts for gas and locomotive coals are made, and naturally the interest centres in the prices which are being obtained. It was feared last December that things would be rather bad for colliery owners, and unfortunately these fears have assumed definite shape.

Since 1888 there has been an advance of something like forty per cent. in wages, and in consequence the price of coal rose, this upward movement being decidedly *en évidence* in 1890. During the past two years, however, prices have shown signs of retrogression, while the prolonged and bitter fight between masters and men witnessed last year testifies that any reduction in wages will be keenly contested. The absence of combination among coal owners this year is a factor which tends to increase competition, though it must be admitted that the combined efforts of the Lancashire and Yorkshire coal owners last season were productive of such insignificant results as to afford but scanty encouragement for again adopting the same *modus operandi*.

Laying aside this point, however, and looking at the conditions which actually prevail; on almost every side, substantial reductions (even on last year's carefully prepared figures) are the rule. Contracts based on the concessions of the previous year are out of the hunt, competition bringing out tenders for gas coal at prices which show on comparison with last year's prices that a shilling, and in some cases as much as eighteen-pence, has been lopped off. Locomotive fuel is no better, the railway companies being able to get offers of coal superior to what they have been having at about two shillings per ton less than they paid in 1890. If the position of coalowners is a true one, a reduction in wages seems inevitable. No one we should think wishes to see another strike like that of last year, and if steps are taken to institute a reduction in the wages, it is to be hoped that those who befriend the interests of labour will give due consideration to the fact that a sliding scale cannot always operate in one and the same direction,

SANITATION.

Though much quiet work has been done in this direction during the past ten years, an impetus is always given to the discussion of hygienic questions when epidemics begin to

threaten this country. Presumably, it is on account of the increased activity which has manifested itself lately, that the fact of day schools frequently being badly ventilated has been brought into prominence.

It is certainly highly desirable that the numbers of children collected in Board and other schools, should be provided with a good supply of air fit for breathing, and it is granted that frequently systems of ventilation, which appear perfect on paper, somehow do not work in practice; still, in this case, it seems in the face of the much more important questions which are calling for attention, as if mole hills might unnecessarily be magnified into mountains.

If it is quite possible that there is more carbon dioxide in the class-rooms of schools than in spinning sheds, but it would be most interesting to know what the average percentage of carbon dioxide would be in the homes of the children who are treated to such bad air at school. By the time the vitiation due to overcrowding small rooms practically devoid of ventilation of any sort, and the contamination due to the burning of gas rich in sulphur has been taken into account, the comparison between the school and the home would, we fancy, be about on a par with that between the spinning shed and the school. There is another point, however, of far greater importance. The recurrence of cholera in France is not very reassuring when the remembrance of the narrow escape this country had last year is so fresh in the minds of every one, and though the water supplies in many parts of the country have since then received more attention, the recent hot weather has had such an effect in Lancashire upon the Irwell as to call forth some strong remarks about its condition. To anyone who has had the misfortune to experience the smell which emanates from the partially-dried bed of the river in its lower reaches, the very mention of the word cholera must awaken very uncomfortable feelings. Unfortunately, as a rule, there is a great talk of what ought to be done, and but little of the doing. The Local Government Board, however, are apparently doing what they can to prevent the disease being brought into this country; and, at all events, it is some comfort to know that the Government has expressed its willingness to grant further legislative powers if the Local Government Board feel the need for the same; as that body is much more likely to act promptly if it is known that the power to enforce the adoption of precautionary measures is at hand if wanted.

COMMERCIAL GOA POWDER.

By W. DUNCAN AND T. S. TWEEDIE.

ACCORDING to the researches of Prof. Attfield, Goa powder yields from 80 to 84 per cent. of chrysarobin. Liebermann and Seidler put it at 66 per cent., and the United States Pharmacopoeia at 54 per cent. For the last four or five years statements have appeared to the effect that the drug of the present time was much weaker than formerly, and contained less chrysarobin. This has been attributed to the Brazilians hewing down the tree (*Andira Araroba*) before it has reached maturity. It was while testing the value of this statement that the experiments, of which we now give the results, were undertaken.

Chrysarobin is readily extracted by hot benzol, but the difficulties of using that solvent in a Soxhlet apparatus, decided us to use chloroform, checking our results by ether. In the "Extra Pharmacopoeia" (p. 109) chrysarobin is said to be insoluble in ether. This, we find, is erroneous. It is soluble in ether, but we cannot agree with the U. S. Dispensatory (16th edition, p. 433) that it is readily soluble.

Ten commercial samples of Goa powder were examined. These were obtained from different sources, in order that we might not have two of the same sample to examine. Four of these were in an unpowdered condition, and mixed with pieces of wood. The others were in powder, of various degrees of fineness. All were reduced to

the same powdered condition, interfering in no other way by removing the wood or otherwise. As a rule those samples which were in lumps and appeared most inferior yielded the best results. We have given the results below, and it will be seen that they vary much:—

Sample.	Chrysarobin per cent.	Moisture per cent.	Insoluble Matter per cent.
1	76.90	2.10	21.00
2	55.50	3.00	41.50
3	80.80	2.60	16.60
4	66.60	2.40	31.00
5	81.80	2.20	16.00
6	82.30	2.20	15.50
7	57.20	3.30	39.50
8	70.80	1.20	28.00
9	68.85	2.90	28.25
10	69.10	2.90	28.00
Average....	71.00	2.50	26.50

The insoluble matter was not examined, but it appeared to be mainly of woody tissue, and left a little ash on burning. From the above results it is evident that the statements as to the deficiency of commercial Goa powder at the present time are not well founded, and that the present supply compares favourably with the drug originally imported.

THE GERMICIDAL POWER OF DISINFECTANTS.

WITH a view to ascertaining the actual value of a disinfectant means of destroying microbes, Mr. A. B. Griffiths, Ph.D., recently been making some interesting experiments. He took for purpose various preparations of Sanitas, and as the most interesting results were obtained by the use of Sanitas oil and the vapour of oil, it is to these that we shall confine our attention.

As stated by the investigator, in the case of pathogenic micro-substances, to be called a germicide, or disinfectant, must be shown to possess this power, that when the microbes are exposed to the substance, and then introduced into a nourishing medium, they refuse to grow; and it must also be demonstrated that when introduced into susceptible animals they are incapable of producing the disease which the same microbes, unexposed to the substance in question, would produce. It is also essential in the treatment of infectious diseases that not only the pathogenic microbes should be destroyed, but also the poisonous substances (ptomaines), which they indirectly produce. The best way of showing the value of the experimenter's work perhaps be to deal with his experiments in detail. Six days' incubation of microbial growths were taken and treated as follows:—

Diphtheria.—Eight tubes, each containing 100 c.c. of nutrient broth, were inoculated with *Bacillus diphtheriae* from pure subcultures of the microbe; and after three weeks' incubation at 20° C. ½ c.c. of Sanitas oil was added to each tube, and the incubation continued for four days. As a result, the microbes in each of the tubes were destroyed, as animals susceptible to diphtheria on being inoculated were unaffected.

Tuberculosis.—Four tubes, each containing 100 c.c. of solid serum, were inoculated with *Bacillus tuberculosis* from pure subcultures of the microbe; and after twelve days' incubation at 37° C. 1 c.c. of Sanitas oil was added to each tube, and the incubation continued for six days. But in each tube the tubercle bacilli were completely destroyed.

Glanders.—Six tubes, each containing 100 c.c. of solid blood, were inoculated with *Bacillus mallei* from pure subcultures of the microbe; and after three days' incubation at 38° C. ½ c.c. of Sanitas oil was added to each tube, and the incubation continued for six days. But in each tube the bacilli were destroyed.

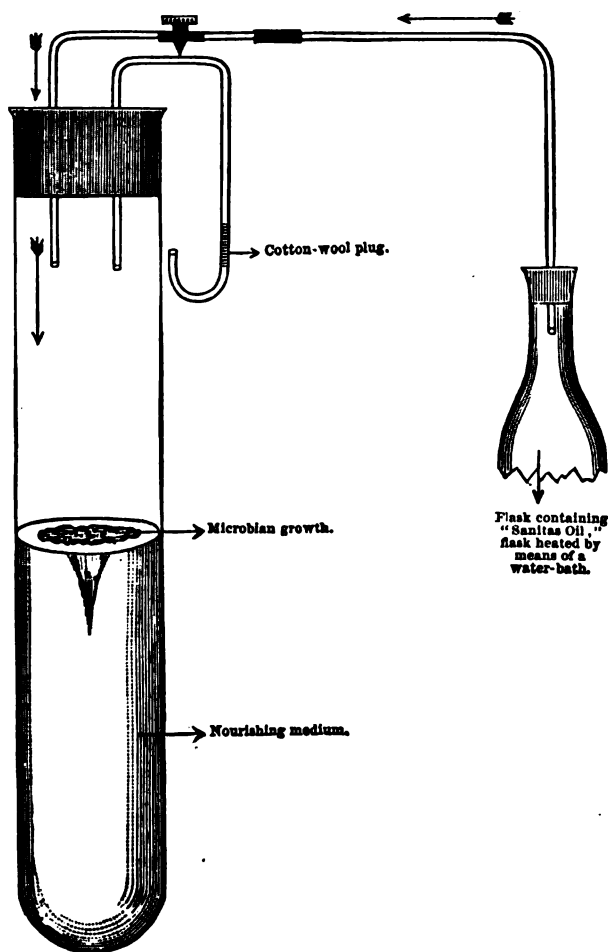
Cholera.—Ten tubes, each containing 100 c.c. of bouillon (alkaline) were inoculated with *Spirillum cholerae Asiaticum* (microbe) from pure subcultures of the microbe; and after four days' incubation 1 c.c. of Sanitas oil was added to each tube, and the incubation continued for five days. But in each tube the microbe succumbed to the action of the germicide. It was further stated that it is quite impossible to inoculate gelatine plates (i.e., agar) containing 1 per cent. of Sanitas oil with the microbe of cholera; although when the Sanitas oil was absent the microbe grew in colonies on the surface of the gelatine.

Typhoid Fever.—Four tubes, each containing 100 c.c. of gelatine, were inoculated with *Bacillus typhosus* from pure subcultures of the microbe; and after three days' incubation 1 c.c. of oil was added to each tube, and the incubation continued for six days. But in each tube the microbes were completely destroyed.

The 1-10 c.c. of "Sanitas Oil" in 100 c.c. of bouillon was, however, incapable of destroying the microbe of typhoid fever; but 1 c.c.

"Oil" in 100 c.c. of bouillon prevented the development of the microbe.

Scarlet Fever.—Six tubes, each containing 200 c.c. of nutrient gelatine, were inoculated with *Micrococcus scarlatine* from pure sub-cultures of the microbe; and after ten days' incubation at 18° C. ½ c.c. of the oil was added to each tube, and the incubation continued for a week. But in each tube the microbes were completely destroyed. The same result was obtained when ½ c.c. of oil was added to pure cultivations of the microbe of scarlet fever in alkaline bouillon and milk (100 c.c. of each). One of the most convenient forms of disinfecting and perhaps one of the most searching is that based on the fumigating principle. It remains to be seen, however, if the vapour of the disinfectant thus distributed is as effectual as the same in a liquid form. Experiments were therefore carried out in this direction, the little apparatus which we illustrate having been employed by Mr. Griffiths for the purpose. The flask containing the oil was placed in a



water bath heated to 100° C., and the vapour of the oil thus passed over into the cultivation tube, as shown. The results obtained with this apparatus showed that the bacilli were destroyed as follows:—

- | | |
|--|--------------------------|
| (a) <i>Bacillus tuberculosis</i> ... | in from 7 to 10 minutes. |
| (b) <i>Bacillus diphtheriæ</i> ... | " 5 " 8 " |
| (c) <i>Bacillus typhosus</i> ... | " 6 " 8 " |
| (d) <i>Bacillus mallei</i> ... | " 7 " 10 " |
| (e) <i>Spirillum cholerae Asiaticæ</i> ... | " 10 " 15 " |
| (f) <i>Micrococcus scarlatinae</i> ... | " 4 " 6 " |

From this it is evident that the vapour itself possesses genuine germicidal powers and should be of service by inhalation in the treatment of diseases of the throat and lungs. Advertising now to the ptomaines referred to at the outset, a number of these have been prepared by the investigator from urine in certain infectious diseases. (*Vide* Griffiths's papers in *Compt. Rendus*.) Also several of these ptomaines have been obtained from pure cultivations of the microbes. With these ptomaines the following are some of the experiments made:—

SCARLATININE ($C_8H_{12}NO_4$) is the poisonous ptomaine of scarlet fever, as it is always present in the urine of patients suffering from that disease; and it is also produced in pure cultivations of *Micrococcus*

scarlatinae. One tenth of a cubic centimetre of Sanitas oil completely destroyed 0.76 gramme of scarlatinine; the products of oxidation, being non-poisonous, may readily be taken into the system with impunity.

DIPHATHERINE ($C_{11}H_{17}N_2O_6$) is the ptomaine of diphtheria. It is present in the urine of patients suffering from that disease, and is also produced in pure cultivations of *Bacillus diphtheriæ*. It is very poisonous, but is completely destroyed and rendered inert by the action of the Sanitas oil.

PROPYLGLYCOCYAMINE ($C_6H_{18}N_3O_3$) is the ptomaine of parotitis (mumps). It is very poisonous, and when administered to a cat it produced nervous excitement, cessation of the salivary flow, convulsions, and death. But the action of both the oil and "Sanitas Fluid" rendered it inert.

GLYCOCYAMIDINE ($C_8H_5N_8O$) is the ptomaine of measles. It is poisonous, and when administered to animals, it causes death in from twenty-four to thirty-six hours. Sanitas oil and Sanitas Fluid both destroy this ptomaine, and the products formed, due to the action of these powerful oxidizing agents.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending June 10, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.28	11.02	0.33	Nil.
South Metropolitan Gas Co.	6	16.50	11.06	0.60	Nil.
Commercial Gas Co.	2	16.40	9.55	0.20	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the proportion of total sulphur contained in the Leeds gas during the month ended June 8th, 1893, has averaged 18.73 grains per 100 cubic feet. The following are the results of tests made at the works in grains per 100 cubic feet.

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	May, 1893.	June 1893.			Weight.	Volume.
Meadow Lane....	18. 26. 31.	8.	14.60	.26	40.75	0.05
New Wortley	17. 25.	2. 7.	23.07	1.02	48.90	0.06
York Street	19. 27.	3. 6.	13.93	.22	40.75	0.05
Average at Works	..	..	18.73	.63	40.75	0.05
Average at East Parade	..	..	19.34	1.16	40.75	0.05

During the month the average illuminating power of the Leeds gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 18.3; standard batwing, 18.8; Sugg's illuminating power meter, 18.3.

PROSECUTIONS UNDER THE FACTORY ACT.—During May last there were 185 prosecutions under the Factory and Workshops Act, out of which there were 169 convictions. The fines imposed amounted to £147. 13s. The chief item among the fines is the total of £38. 18s., which is the amount paid in the 28 convictions for employing hands during illegal hours. There were seven convictions on the ground of insanitary or uncleanly conditions of workshops, etc., the penalties in which cases amounted to £7. 0s. 6d.

Legal Intelligence.

HIGH COURT OF JUSTICE.—QUEEN'S BENCH DIVISION.

(Before Mr. Justice Mathew and Mr. Justice Wright.)

THORNLEY APPELLANT, SHOOT RESPONDENT.

This is a case which has already been before the court, but has been sent back to the magistrates to be restated. It raises an interesting question as to the putting of salt into beer, and whether so doing is an offence against the Adulteration Acts. The respondent, a publican at Merthyr Tydvil, was summoned for that he unlawfully sold to the appellant, to his prejudice, beer which was not of the nature, substance, and quality of the article he asked for. The charge was under section 6 of the Sale of Food and Drugs Act, 1875—"No person shall sell, to the prejudice of the purchaser, any food or liquid which is not of the nature, substance, and quality of the article demanded; provided that an offence shall not be deemed to be committed where any matter or ingredient not injurious to health has been added, the same being required for the production or preparation of it as an article of commerce, and not fraudulently to increase the bulk or measure of the food or liquid, or to conceal the inferior quality of it." The allegation was that the beer contained chlorides equivalent to 75 grains of chloride of sodium to the gallon, and that the quantity was excessive. The public analyst stated that the beer contained $45\frac{1}{2}$ grains of chloride per gallon, which, calculated into salt, was equal to 75 grains per gallon, which, in his opinion, was an excessive quantity, and far beyond what was required in the manufacture of beer; and, from experiments he had made, he had found that a lesser quantity could produce thirst. The beer quenched thirst at the moment, but ultimately reproduced thirst. The water itself contained 1·8 grains of chloride of sodium per gallon. It would take a gallon and a third of water to make a gallon of beer, so that there would be 2·4 grains accounted for in that way, and 8 grains of salt could be produced from the malt and hops in the beer, which would make 10½ grains, without adding any natural salt, and in this case an addition of 65 grains was certainly not necessary to make beer. He held, he said, that anything over 50 grains of chloride per gallon was adulteration. Another witness stated that good ales and beers did not contain anything like 50 grains per gallon. Another witness stated that out of eighty beers he had analysed, in only three did the chlorides exceed 60 grains per gallon. The bulk of the salt, said another witness, was added during the brewing, or afterwards. With very soft water some salt might be necessary, but good light beer contained very little.

Evidence was given for the defence, and chemists gave their opinion practically in accordance with the public analyst as to the quantity of salt in the beer, but thought that there was no legal standard of the quantity of chlorides required, and that to make a marketable article the brewer must limit himself to 112 grains a gallon, and if there were more the beer would be spoiled. One of them had, however, lately tested good beer and found 80 grains a gallon. Another chemist said 56 grains of chloride of sodium had been added to the water in brewing the beer he analyzed. After a great deal of evidence, the appellant, the inspector, admitted that the addition of salt was necessary in the process of manufacture, but he contended that the addition of an excessive quantity was prejudicial to the customer, and he asked the justices to fix 50 grains per gallon as a proper quantity, and urged that any quantity over that amount was excessive and prejudicial to the customer. The justices, however, upon the evidence, declined to decide that there was any standard quantity of salt which should not be exceeded, and they declined to say what was a standard quantity, and they found as facts that salt is a necessary ingredient in the manufacture of beer, that it is not injurious or prejudicial to health, and that the salt in this case was not injurious to health, or added for the purpose of increasing the bulk of the beer, or for concealing any defect; nor was it added fraudulently, and that, therefore, the question as to the quantity used being excessive did not arise, and they dismissed the summons, but stated a case to raise the question whether, when any matter or ingredient not injurious to health is added, because required for the production or preparation of the article of food or drink as an article of commerce, and is not used fraudulently, the question of the quantity of the material used is one for the consideration of the justices; if not, then the summons to be dismissed; but if the Court should be of opinion that the quantity used was a question for the justices, then the Court was asked to say what was the *maximum* quantity of salt which can be used in the manufacture of beer and to send the case back to them to decide whether the salt used exceeded that *maximum*. When the case came before the Court in the last sitting they were of opinion that the question was one of fact, to be dealt with by the justices, and sent the case back to them to be restated. The magistrates now sent it back with these additional findings, that the salt used was not injurious to health; that it was added to the beer in the preparation of it as an

article of commerce, etc. (as they had found before); that under the proviso in section 6 any ingredient not injurious to health can be used if it does not increase the bulk, etc.; and that it is not for the justices to ascertain and determine whether or not the quantity of the ingredient so used is excessive or not. And for this reason they found that the beer was of the nature, substance, and quality of the article demanded. The case now came on again.

Mr. Thomas, Q.C., appeared as before for the inspector, the prosecutor, and contended that if, as the case is now stated, the necessary facts did not appear, then that it ought to be sent back to the magistrates again to answer specific questions of fact material. It is surely a question of fact whether the quantity of salt used is excessive, and if it is excessive then the beer is not of the quality ordered.

Mr. Moulton, Q.C., who appeared for the seller of the beer, asked by what measure or standard excess was to be ascertained. The question was whether the beer sold was not of the nature, substance, or quality of what was ordered—that is, beer; and certainly it was not. If it does not prejudice the customer, then there is no offence.

After a good deal of discussion, in the course of which Mr. Justice Mathew observed that he wanted to know why a larger quantity of salt than necessary to the manufacture of the beer should be put into it.

The Court said the findings were not sufficient to enable them to decide the case.

Mr. Justice Wright suggested that the magistrates should be asked to state whether the quantity of salt was such as to affect the nature, the quality, or substance of the beer; whether it was such as to prejudice the consumer.

Mr. Justice Mathew assented, and the case was sent back accordingly to have these questions answered.

Our Book Shelf.

HANDBOOK OF CHICAGO EXHIBITION. Final Edition. 176 pp. London: W. Clowes and Sons, Ltd. 1893.

This handbook is published by the Royal Commission for the Chicago Exhibition. It contains cuts of the various buildings and plans of the exhibition, showing those portions which are devoted to Great Britain. The names of those gentlemen serving on the committees are first given, after which come the general regulations for the British section. Following these are the special regulations for the same section; the modifications of the customs regulations; and the law regarding the immigration of aliens. The traffic arrangements are clearly set forth, and some fifteen shipping lines are named, along with their rates. With regard to the removal of exhibits, none can be taken away during the exhibition, and all of them must be removed by January 1st, 1894, the exhibition closing on October 30. Provision is made for warehousing empties at exhibitors' own cost and risk. The rules and regulations for the supply of power in the shape of steam, electricity, and compressed air, are rather interesting. Pipes for steam and air have to be laid at the expense of the exhibitor. The working pressure at the boilers for steam is 125 pounds per square inch. The water pressure is maintained at 86 pounds per square inch, due to a head of 200 feet. With regard to passes for admission, every person to whom a pass is granted by exhibitors will have to be photographed by the official photographer, for which a fee of one dollar is charged. Attendants have also to wear a badge. The leading bureau of public comfort covers a lot of information of use to intending visitors, while the book closes with a description of the various routes to Chicago.

CHICAGO EXHIBITION. OFFICIAL CATALOGUE OF THE BRITISH SECTION. 544 pp. London: Wm. Clowes and Sons, Limited. 1893.

This Catalogue of the British Sections contains a list of the various departments, each of which is introduced by a review of the work to which each is devoted. Mines and mining are interestingly dealt with by C. Le Neve Foster, D. Sc.; while metallurgy has been written up by Professor W. Roberts-Austen. A list of British exhibitors is appended to each description. Among the contributors to the collection of economic minerals we note gold ores from the Morgan mines in Wales; iron pyrites from the Caecoch mine, North Wales; oil shale from the Broxburn Oil Company; salt from the United Alkali Company and the Salt Union, and celestine from Bristol. Messrs. Brunner, Mond, and Company and the United Alkali Company are the chief representatives of chemical industry. Education is dealt with by J. G. Fitch, Esq., H.M. Chief Inspector of Schools; photography by Captain Abney; instruments of precision by Silvanus P. Thompson. Under the heading of engineering and public works we notice that two well-known processes for treating sewage are being exhibited. The catalogue also contains several items of interest concerning the exhibition in the general introduction, compiled by the Secretary to the

Commission, Sir H. Trueman Wood, M.A. Banners have been lent by seventy-six Corporations of the United Kingdom to adorn the British section in the manufactures building. Twenty-one of the companies of the City of London, likewise, lent banners for decoration.

THE OUTLINES OF ORGANIC CHEMISTRY. By C. J. Leaper. 118 pp. Index. London: Iliffe & Son. 1892. 2s.

This book is really a companion for the laboratory, for students engaging in practical organic chemistry. The author has found, like a good many teachers under the Science and art department, that in regard to organic chemistry, lectures, though demonstrated by experiments, are of little good, the students requiring to do some practical work before they seem to grasp a satisfactory knowledge of the subject.

It consists of 20 chapters dealing with the principles of physical organic chemistry. Synthesis of ethene, manufacture of coal gas and the distillation of coal tar, oxalic acid, cyanides, the paraffins, alcohols, and ethers. Each chapter contains a number of experiments shortly described and supplemented, with a few suggestive remarks and notes, bringing out and emphasising the most important points in the lecture which is supposed to have preceded the laboratory instruction. A brief résumé of the lecture is given in certain cases to clearly show the aim and object of the experiments which are subsequently described. At the end of each chapter are four questions which are supposed to be answered by the students as home work. The book is well arranged and the experiments clearly described, and should be found very useful in preparing students for the Government examinations in organic chemistry, being more practical than the majority of books of this kind.

Official Memoranda.

(From the Board of Trade Journal.)

THE CUSTOMS TARIFF OF VICTORIA.

THE following is a statement of the import duties now leviable upon goods of interest to the chemical and allied industries entering Victoria:—

Name of Article.	Rates of Duty.
Acetic acid, up to 30%	Per pint or lb. s. d.
Do. for every 10% or part of 10% above 30%	" " 0 3
Muriatic, nitric, and sulphuric acids	Per cwt. " 5 0
Candles	Per lb. 0 2
Cement, including plaster of Paris and products having same as their basis	Per cwt. 1 0
Ammonium carbonate	Per pint or lb. 0 2
Ammonium hydrate (Liquid Am.)	" " 0 2
Glycerine, pure	Per lb. 0 3
Glycerine, crude	" " 0 1
Nitrate of silver	Per oz. 0 6
Blasting powder	Per lb. 0 1
Gelatine and gelatine dynamite	" " 0 1
Other explosives	" " 0 4

(To be continued next month.)

CUSTOMS TARIFF OF LIBERIA.

The following articles are affected by the tariff alteration made by the legislature of the Republic by their Amendment Act, 1893.

Name of Article.	Duty now leviable.
Salt	Per 100 lbs. Dols. Cents. 0 '05
Soap, common	Per lb. " 0 '02
Soap, toilet	" " 0 '06
Paints	" " 0 '01
Kerosene	Per gallon 0 '04
Gunpowder	Per lb. 0 '05

PLATINUM IN THE OURAL.

According to the *Journal des Mines* there is no cause to fear that the supplies of platinum in the future will be short. There are beds of platiniferous ores at Biseisky in the Oural which themselves will suffice to supply the needs of the whole world for many years to come. Platinum is also found in Brazil, and in the Cordillera.

In the Oural platinum is met with in grains mixed with sand in the proportion of 17 to 20 grammes for each 1,600 kilogs. of sand. The whole of the platinum extracted from this district is sent to St. Petersburg, where it is treated and shipped abroad. The annual consumption is at present from 3,000 to 4,000 kilogs., but it is constantly increasing.

RUSSIAN PETROLEUM PRODUCTION.

According to the report of Mr. P. Stevens, Her Majesty's Consul at Batoum, the petroleum wells at Balachani, Sabunchi, Romani, and Bibi-Aibat produced 5,491,970 tons of crude oil during the year, or at the average daily rate of about 15,005 tons. The monthly output of these wells can be set down at the following figures, viz.:—

Month.	Quantity.
1892—	Tons.
January	401,844
February	387,574
March	539,755
April	521,546
May	571,144
June	379,166
Total production for first half year	2,801,029
July	319,885
August	382,844
September	427,723
October	516,697
November	528,006
December	515,786
Total for the year 1892	5,491,970

From these figures it will be noticed that the production reached its highest figures in the month of May, and its lowest in the month of July, 1892, and that the output during the first half of the year exceeded that of the second half by 110,088 tons. In the month of March, 1892, during the progress of drilling, several very large fountains were struck, and while they remained in activity—which, however, was not for any length of time—the production of the wells on the Apsheron Peninsula probably reached the enormous figures of 2,000,000 pounds, or 32,258 tons, per diem, but this rate of production has never been attained since. The outbreak of cholera in June doubtless curtailed the production for several months.

It is computed that 299 wells were producing crude oil on December 31 last; that 150 old wells, which had ceased their production, were being cleansed and repaired with a view to bringing them to activity again; that 81 new wells were being drilled; and that 34 derricks had been erected, and were ready to commence drilling operations.

The value of the petroleum products shipped from Batoum in 1892 is estimated at £2,969,670.

The total quantity of illuminating oil shipped to ports east of the Suez Canal was 309,687 tons, of which 154,217 tons went to India, and the remaining 155,470 tons to Cochin-China, China, Japan, Java, and Manila. Of this quantity 304,977 tons were conveyed in cases, and the balance of 4,710 tons was carried by tank steamers.

THE FRENCH BUTTER ADULTERATION LAW.

In a despatch to the Foreign Office, Sir J. A. Crowe, Her Majesty's Commercial Attaché at Paris, gives the following information respecting the present state of the law on the subject of the adulteration of butter in France:—

Several bills drafted by private members have been submitted to a committee of the Chamber of Deputies, and the result has been a proposition *de loi* supported by the Government reforming the law of March 14th, 1887, as follows:

Clause 1, enacting that no one shall be allowed to exhibit, sell, import, or export as butter, any product not composed exclusively of milk or cream, has already been voted. The next clauses, which are still under discussion, forbid the mixing of milk, cream, or butter with greases of any kind except in factories under State control.

No factories for the manufacture or distribution of margarine or other greases are allowed to start unless authorised and controlled by the State; and all greases, after paying an excise of 2 frs. per 100 kilos., must be marked in case or cask with indelible letters describing them as margarine or food greases. The same description must be added to all receipts and invoices.

Imports and exports are subject to the same rules as home products, and heavy penalties are enacted against all such as contravene the statute.

A SUGAR REFINERY BURNT DOWN.

A SERIOUS fire occurred last week at the sugar refinery of Messrs. D Martineau & Sons, Ltd., situated at the Clyde Wharf, Canning Town, London.

The chief building is a structure ten floors high, used not only as a refinery, but for the purpose of storing also. Great masses of sugar in various stages of production were stored upon the different floors of this large warehouse. Despite the strenuous efforts of the Fire Brigade, however, the fire continued to grow in volume; the tons upon tons of sugar formed ready and most inflammable fuel, and it was not long before it was evident that the big factory was doomed to total destruction. There was soon not a portion which had not become entirely involved, and when the roof gave way and the flames shot hundreds of feet into the air, the reflection could be seen for many miles round London.

A second block of buildings, which was used as stores and engine-house, and which contained valuable machinery, was soon fiercely attacked, and the fire appeared to be spreading right and left when the flames burst across to yet another block used by Messrs. D. Martineau and Sons as a refinery. This was an eight-floored warehouse, and when the flames began to scorch the side front it seemed likely for a short time that this structure also would become involved, and that two refineries would be blazing at the same time. With admirable promptitude, however, the brigade officers concentrated their energies upon this portion of the fire, and had the satisfaction of preventing what would have been a most serious extension of the disaster.

While the brigade were dealing with the fire at this point, the flames began to attack an adjoining building on Hall's Wharf, and the chemical manure manufactory of

MESSRS. T. FARMER AND CO.

was likewise caught. Three hours after its commencement, the backbone of the fire had been broken, but then fresh difficulties and dangers presented themselves, for the floors of the gutted refinery began to collapse with tremendous crashes, and to carry with them great masses of machinery and ruins. The members of the fire brigades present had to exercise the greatest care in carrying on their work of final extinction, and fortunately this was accomplished without serious accident.

THE CHESHIRE ALKALI COMPANY.

THE meeting of the creditors of the Cheshire Alkali Company, held at the invitation of the directors, took place at Crewe on Friday, the 16th instant. Mr Dobson said the works had been mismanaged, but they had now procured new machinery, and the cost of production would be very much less in the future. He believed the company would recover its position. He hoped the creditors would allow them time, and he had no doubt they would then be paid. A discussion followed, and a resolution was passed deferring for awhile payment of the present creditors. Messrs. Waine, Moore, and Philip Speakman, of Kuncorn, were appointed a committee to look after the interests of the creditors, the committee being empowered to call another meeting of creditors if they should find anything going wrong. The creditors generally approved of this course. The liabilities of the company are understood to be heavy, but the exact amount was not stated.

Reports of Companies.

THE GENERAL PHOSPHATE CORPORATION. LIMITED.

A MEETING of the shareholders of this corporation was held last week at the City Terminus Hotel, London, Lord Stalybridge in the chair. The meeting had been convened by the direction of Mr. Justice Vaughan Williams "for the purpose of ascertaining their wishes as to whether an order shall be made on a petition to wind up the corporation, presented by George Mander Allender." A shareholder inquired whether reporters were present, and, if so, whether the shareholders thought that private matters should be discussed publicly. The chairman said that they had met to consider what he hoped would be the reconstruction of the company, and as purely private matters and also private documents were under consideration, he thought it would be desirable if the gentlemen of the press withdrew. Mr. G. Barham said he strongly objected to the suggestion, as did also Mr. J. Judd. Mr. Clough, M.P. (a member of the committee), moved a resolution in effect requesting the reporters to withdraw from the meeting. Mr. Wood seconded the motion. Mr. Smallman observed that the report of the committee contained such grave statements that he thought the chairman and the directors would gladly welcome public

discussion. The chairman pointed out that the report was headed "private and confidential." Mr. Smallman replied that the shareholders had come to the meeting to discuss the report, and he held that they should do so publicly. The Press had always attended their meetings. The chairman put the motion, which was carried by 26 to 10. Mr. Smallman asked for a poll, but was informed that one could not be taken. The reporters then withdrew.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

A. B. M. (Bombay).—We shall be pleased to do so. The address is 13, Rue des Archives, Paris. The works are at Villafranca-in-Lunigiana, Italy. Letters should be sent to the former address. A reference to your source of information will oblige.

A. P.—The alteration has been made.

S. W. AND P.—We shall be glad to receive intimation of such matters at all times.

W. H. W.—We are obliged to you for your promptness. We have mentioned the matter in our columns this week.

R. S.—It is easily explained, since it is not a case of might, but cannot, so there is no alternative in the matter.

N. H.—Yes, it can be done, and as many as six at once.

Trade Notes.

DONALD'S CHLORINE CO., LTD.—The petition for the winding up of this company has been granted, Mr. William Dunlop, C.A., Glasgow, being appointed liquidator.

THE DANISH SULPHURIC ACID CO.—The close of the last financial year, which is the first of the Danish Sulphuric Acid and Superphosphate Company, shows a satisfactory profit of £4,692., enabling the company to declare a dividend of 5 per cent.

THE ESSENCE OF ROSE INDUSTRY.—This industry, which is carried on to a large extent in Roumelia, will, it is anticipated, feel the effects of the keen frosts which prevailed last winter. The rose trees suffered considerably, in fact so much so that the yield of roses this year will, it is calculated, be 25 per cent. less than in preceding years.

COCOA BY THE HALF TON.—In making preparation for the expedition to the North Pole, undertaken by Dr Nansen, it was necessary that all the provisions taken should keep good for at least seven years, and be of the very highest quality of their kind. We understand that Messrs Cadbury, of Bournville, have supplied about 1,500 lbs. weight of their cocoa essence and chocolate in hermetically sealed tins.

THE ST. HELENS SEWAGE SCHEME.—The Select Committee on Police and Sanitary Regulations have concluded their inquiry into the St. Helens Corporation Bill. They decided to pass the Bill on condition that the Corporation should use the best-known available chemical process for the treatment of sewage, having regard to the special local circumstances, and that the Corporation should be relieved of the necessity of acquiring more land for sewage purposes.

CHEMICALS FOR TREATING SEWAGE.—The special committee appointed by the London County Council recommended last week the acceptance of the following contracts for chemicals:—Messrs Hall and Co., for 18,000 tons of lime at 13s. 9d. per ton; Buxton Lime Firms Co., for 2,000 tons at 15s. 6d. per ton (in trucks at Barking); Messrs. T. Herschell Jones and Co., 5,000 tons of proto-sulphate of iron at 21s. 9d. per ton; Messrs. J. M. Steele and Co., 1,700 tons of sulphuric acid at 37s. 6d. per ton; Messrs. C. Tennant, Sons, and Co., for 1,500 tons of manganate of soda at £14. per ton, or any less quantity at £14. 8s. per ton.

BOILER EXPLOSIONS ON THE DECREASE.—According to the report of the chief engineer of the National Boiler and General Insurance Company, whereas in the ten years 1873-82 the average number of boiler explosions per annum was 43'7. During the last decade the average has been 34'9. In the earlier period the number of persons killed and injured by such accidents was considerably greater than in the later time, the average per explosion being 3'24, as against 1'96. These statistics apply to the United Kingdom. Last year there were twenty-seven explosions, causing the death of eleven persons.

JAPANESE CEMENT A FAILURE.—We have made reference on several occasions to the rapidity with which Japan is becoming a self-supporting country in many industries; but they do not yet seem able to compete with foreign cement makers. Large quantities of native cement have been used in the improvement of the port of Yokohama. Now that the work is nearly finished, however, it is noticed that several large blocks of concrete are cracking and being decomposed by the

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 41s. 11d. cash. Middlesbrough 35s. cash, and hematite 45s. cash. Copper, easier: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. to £45. 7s. 6d. cash, and £45. 7s. 6d. to £45. 15s. three months. Tin dull: Straits closed at £89. 10s. to £90. cash, and £86. to £86. 10s. three months. Australian £99. cash. English ingots, £91. 10s. Lead, firm: Spanish, £9. 8s. 9d. to £9. 10s.; English, £9. 12s. 6d. to £9. 15s. Silesian spelter: Ordinary, £17. 12s. 6d. to £17. 15s. Nickel, 1s. 8½d. per lb. Antimony, £39. Quicksilver: First hands, £6. 17s. 6d.; second hands, £6. 17s. Copper shares quiet: Cape, 1½ to 1½. Copiapo, 2 to 2½. Libiola, 2½ to 3½. Mason and Barry, 1½ to 2. Rio Tinto, 5½ to 5½; Tharsis, 4½ to 4½; Namaqua, ½ to ¾.

WOLVERHAMPTON, WEDNESDAY.—The continued improvement of Cleveland and Scotch markets has a gratifying effect here, and ironmasters are more confident. Prices are again rather stronger on the week. Sheet iron makers report additional sales at £6. 12s. 6d. singles, and £6. 15s. doubles; common bars, five guineas to £5. 10s.; merchant bars, £6. to £6. 5s.; rivet iron, £6. 15s.; Derbyshire pigs, 41s. 6d. to 42s. 6d.; Northampton, 40s. 6d. The intended restart of the Herberts Park Ironworks, Darlaston, is announced.

GLASGOW, WEDNESDAY.—Market easier, with good business. Scotch done at 42s. 0½d., and 41s. 11d. cash, also at 42s. 2½d. and 42s. 1d. one month; closing with buyers at 41s. 11d. cash, sellers ask ¼d. more. Cleveland done at 35s. 2½d. 14 days, also at 35s. 2½d. one month; closing with buyers at 35s. cash; sellers ask 35s. 1½d. Cumberland hematite closes with buyers at 45s. cash, sellers ask 45s. 3d. Middlesbrough hematite closes with buyers at 43s. 1d. cash, and 43s. 4d. one month; sellers ask 43s. 4d. cash and 43s. 6d. one month.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is quiet and easier in price, business being done in Lagos at £23. 5s. per ton transit, and soft oils £23. Olive, save for being a little bit quieter is unchanged, prices being £32. 10s. to £42. per tun, according to quality. The improvement in linseed continues, and prices have advanced again, Liverpool makes in export casks being firm at 21s. 3d. to 21s. 6d. per cwt. Rape shows no alteration in price for refined Stettin, but is perfectly stagnant. Cottonseed after having ruled steady, though rather quiet during the week, is to-day 3d. dearer, Liverpool refined being quoted 22s. 9d. to 24s. 3d. per cwt. Castor oil has been pretty active, good seconds Calcutta has been selling freely during the earlier part of the week at 2¼d. per lb., but the quay having been cleared of several large parcels 2½d. is now asked, business being done at that figure. First pressure French is still quoted 2¾d., Madras 2¾d. to 2½d. per lb. Tallow is dull, the business done being small, with prices inclined to fall if anything. Resin, common, is much firmer, and 3s. 9d. per cwt. is now obtainable. Spirits of turpentine are easier, having been on the decline most of the week; to-day's price is 23s. per cwt. Petroleum is slow of sale with American 4¾d. to 5½d.; Russian refined 4d. per gallon.

COLOURS unchanged and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE LIVERPOOL MINERAL MARKET.

The mineral market continues brisk, with better prices ruling. Manganese stocks are being much drawn upon, and slow arrivals, hence prices remain very firm. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) is very quiet; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Shipments are very large, and likely to increase; lump 20s., seconds 16s., thirds 12s. French chalk: The demand is a little easier this week, but prices maintain their firmness. Barytes: Carbonate scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No.

2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and mangani-ferous are quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand. Chrome ore: The improvement reported last week has been well maintained, with an increased demand for export. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Pottery lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manu-factured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron); finest quality 25s. to 30s.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—A feeling of indifference seems to have permeated the markets, which there is no hope of eradicating before the close of the month, and were it not for the little business moving for export orders, the situation would be exceedingly dull; linseed oil has receded somewhat upon the advance made the previous week, and cottonseed oil has maintained its own. Rape oil is in very poor demand, and can be bought cheaper—the position both here and on the continent is dull. The present quotations are:—Linseed oil, spot, 19s. 10½d; forward, July/Aug., 19s. 4½d.; last four months, 18s. 4½d; boiled ditto (spot), 20s. 10½d.; refined ditto, 21s. 3d. Refined cotton oil, spot naked, 20s. 3d.; forward, July/Aug., 20s. 4½d.; new oil, Nov./April, 18s. 3d. (buyers); Crude, 17s. Refined rape oil, 25s. 6d. in casks. Turpentine, 23s. 6d. per cwt. Petroleum jellies, 26s. to 28s.

CAKES.—Linseed cakes are dearer in all positions, owing to the advance in seed, 95%, pure, £8. 10s. spot; and £9. Sept./Dec. Sellers are holding off for a prospective rise owing to an insufficient supply of fodder, as a result of the prolonged drought. Cotton cakes are also very firm; best makes £5. 2s. 6d. spot, and £5. Nov./March.

PAINTS.—The trade is very brisk, and holds out good promise so long as the fine weather is prolonged; an all-round satisfactory demand is experienced. Paints ready-mixed, in various-sized tins, 28s. to 30s. per cwt.; enamels, from 4s. 9d. per dozen; Venetian red, dry, £6. to £10.; white lead and zinc, without change; oxide of iron, dry, £9. to £18. per ton; French ochre, 60s. per ton; fine linseed oil putty, £6. per ton.

THE COPPER MARKET.

Messrs. Harrington & Co., in their fortnightly report, dated Liver-pool, June 16th, state:—Charters for the past fortnight are cable as 250 tons, making the total quantity since 31st December 8,250 tons, against 10,350 tons same time last year. Exchange 15½d. During the past fortnight the sales of G.m.b.'s and G.o.b.'s amounted to quite 8,500 tons, opening at £43. 5s. cash, and £43. 15s. three months; prices went on improving, with only slight checks, till £44. 11s. 3d. and £44. 17s. 6d. respectively was paid, and at which rate we close to-day, market having an upward tendency. Transactions in furnace material have been on a limited scale, Montana matte, of various descriptions, commanding top prices, as up to 9s. 6d. per unit has been paid for copper contents, but these sales have been made for ship-ments, extending into autumn. The statistical position of copper is certainly very good, and the visible supply is reduced to a lower figure than has been shown for many years past, which should encourage speculation, as prices are still low.

The Cape Copper Co. has declared a dividend of 1s. 3d. per share on the cumulative, preference, and ordinary shares, free of income tax, payable on 1st July.

The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 339 tons for the fortnight. The stocks include about 1,400 tons of copper sold, but not yet delivered to smelters. The visible supply shows a decrease of 998 tons for the fortnight. The total deliveries for the fortnight are 4,567 tons. The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 10 tons, against 169 tons on the 1st inst. The delivery in Swansea was 164 tons (the whole stock), but 5 tons being added to the Liverpool stock makes the decrease 159 tons.

The sales of furnace material at Liverpool comprise—1,100 tons Argenterous Montana matte, 400 tons Argenterous Ledy matte, 20 tons Argenterous Italian matte, 12 tons Argenterous Chili ore, 35 tons Argenterous Mexican matte, and 36 tons Argenterous Peruvian matte, on private terms; 100 tons ordinary Montana Matte, at 9s. 1½d.; 200 tons Columbia matte, at 9s. 3d.; 300 tons Portuguese ore (low produce), at 7s. 9d., and 25/30 tons English precipitate, at 9s. per unit.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue fairly steady, and with present heavy shipment's stocks are running very low; the out-put also will be considerably reduced owing to the general closing of the Tyne works this week, being the annual race holiday week. Prices are much about the same. Sulphur a shade firmer, at £4. 2s. 6d. per ton.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8¼d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt.—Price, 8s. 6d. per ton f.o.r., or 9s. 1d. f.o.b. Tees, with fair demand.

Coals.—Trade generally is firm, the holidays this week reducing the output. Best Northumbrian steam, 8s. 9d. per ton; small steam, 3s. 3d. per ton; gas coal slightly firmer, at 6s. and 6s. 6d. per ton; household and bunker coals in poor demand; Coke steadier; for export, price is 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Just after writing last week sulphate of ammonia had another sudden accession of strength, under which, before the end of the week, some holders readily got as high as £12. 15s. or more for immediate delivery. The market is still highly excited, and operators don't well know what to make of it as regards the future. Stocks are bared, and the tendency of the forward selling is undoubtedly upwards. It is said that October-March business has fetched £12. 2s. 6d., while for July to September there are many transactions on the record at £11. 17s. 6d. Spot price to-day is £12 15s. Ordinary chemicals are quiet, and one or two of them, such as chlorate of potash and sulphate of copper, are lower in price. Tyneside Works are closing for the race holidays, and those of Glasgow and neighbourhood next month for the annual fair holidays—interruptions which, by reducing the quantities of stocked chemicals, ought, to a considerable extent, to improve the market. In the paraffin section the bulk of business doing is so far satisfactory for the season, but the values are all still too low.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £5. 5s. 6d. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 5s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s; borax, English refined, £30., and boracic acid, £37 nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4¼d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash 8¾d. less 5% Liverpool; nitrate of soda 8s. 9d. to 9s.; sulphate of ammonia, spot, £12. 15s. f.o.b. Leith; sal ammoniac, first and second white, £35. and £33. less 2½% any port; sulphate of copper, £16. 7s. 6d., less 5% Liverpool; paraffin scale, hard and soft, 1¼d. per lb; paraffin wax 120° semi-refined 2¼d.; paraffin spirit (naphtha) 4d. a gallon; paraffin oil, burning, 4¼d. to 5¼d., at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating) £865° £3. 15s. to £4. 885° £4. 5s. to £5. 15s., and 890/895° £5. to £6. 10s. Week's imports of raw sugar at Greenock were 36,671 bags.

New Companies.

Hall and Cameron, Ltd.—CAPITAL, £500. in shares of £1. each. The object of this company is to purchase the invention of D. C. Mackenzie and to manufacture absorbent, deodorising, and like preparations for toilet and similar purposes, and to carry on the business of chemical manufacturers.

Wigan Cannel Colliery, Ltd.—CAPITAL, £20,000. in shares of £10. each. This company has been formed with the view of taking over the business carried on by S. and E. Moss, executors of the late E. Moss, at the Elms Colliery, Wigan, and to trade as coal and iron masters, brickmakers, &c. The subscribers to the memorandum of association are—G. W. Lancaster, 110, Fenchurch-street, London, E.C., coalowner; J. Spier, 110, Fenchurch-street, London, E.C., colliery owner; J. Lancaster, Lesmahagow, colliery proprietor; E. S. Lancaster, Acton; E. Lancaster, Lesmahagow; C. M. Irvine, Fence, Lesmahagow, mechanical engineer.

Mark Smith, Ltd.—CAPITAL, £6,000. in shares of £1. each. This company has been formed to take over as a going concern the business now carried on by Mark Smith and W. H. Smith at Louth, Lincolnshire, and by A. Blackie at Port Glasgow, and to manufacture and to deal in weed killers, sheep dip, insecticides, and general chemical preparations in connection with husbandry, &c. The subscribers to the memorandum of association are—Mark Smith, 163, East Gate, Louth, chemist; K. Smith, Louth, married woman; Maria Hurley, Louth, married woman; Wm. H. Smith, Louth, merchant; L. E. Smith, Louth, married woman; Alfred Blackie, 97, Milton-street, Glasgow, manufacturing chemist; A. H. M. Blackie, Glasgow, married woman.

Coudesa Calamine Mines, Ltd.—CAPITAL, £20,000. in shares of £1. each. This company has been formed to enter into an agreement between J. W. R. Lee and others, and to carry on the business of miners and metallurgists in the province of Santander, Spain. The subscribers to the memorandum of association are—L. Woodhouse, 155, Fenchurch-street, London, E.C., shipbroker; J. E. de Wolf, 128, Great St. Helens, London, E.C., merchant; J. F. Cohen, 32, Great St. Helens, London, E.C., merchant; F. A. Jaques, Newcastle-on-Tyne, shipbroker; S. F. Billyard, 22, Grafton-road, Plaistow, Essex, clerk; E. F. Lee, 10, Derby Villas, Forest Hill, London, S.E., merchant; H. E. Billing, Herbert Lodge, Streatham Common, London, S.E., merchant.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. SAUNDERS and G. HEY, soap and candle manufacturers, under the style of Saunders and Co.; and as fellmongers and wool-staplers, under the style of Hey and Co., Gloucester.

C. H. TAYLOR and G. T. CROSSLAND, drysalers, Elland, under the style of C. H. Taylor.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

BRACHER, W. J., Eastleigh, Hampshire, oil and colour merchant.

Adjudication.

WILLIAMS, MAURICE, Chancery-lane, W.C., teacher of chemistry.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTER PATENTS.

Evaporating Brine. W. A. Kirkman. 10,864. June 5.

System for Town Sewage Disposal and the Production of Electricity. W. H. Hill-Hartland. 10,887. June 5.

Improvements in Disintegrating Machines. A. L. Smith. 10,915. June 5.

Revivifying once used Plaster of Paris. W. S. Lea and J. P. Hewitt. 10,925. June 5.

Improved Apparatus for the Electrolytical Decomposition of Brine, etc. M. Guthrie. 10,976. June 5.

New Colouring Matters or Dyes from Naphthalene. J. V. Johanson. 10,996. June 5.

Improvements in the Manufacture of Heating and Illuminating Gas. H. Spicer, E. Spicer, and H. Spicer. 11,015. June 6.

Mineral Bleaching Apparatus. E. Gibson. 11,019. June 6.

Treating Cottonseed, Linseed, and other Vegetable Oils. G. W. Scollay. 11,034. June 6.

Improvements in the Refining of Vegetable Oils. G. W. Scollay. 11,035. June 6.

Improvements in the Manufacture of Chlorine. A. Brand. 11,040. June 6.
 Improved Electric Batteries. M. L. M. Hellesen. 11,032. June 6.
 Evaporating Apparatus. S. M. Little. 11,104. June 6.
 Improved Electrolytic Apparatus. T. Craney. 11,105. June 6.
 Electrolytic Cells. T. Craney. 11,106. June 6.
 Improved Electrolytic Apparatus. T. Craney. 11,107. June 6.
 Improvements in the Electrolysis of Salts and Apparatus therefor. T. Craney. 11,108. June 6.
 Improvements in the Production and Treatment of Colouring Matters. A. Ashworth. 11,137. June 7.
 Improvements in the Manufacture of Colouring Matters. A. Liebmann and A. Studer. 11,147. June 7.

Improvements in the Manufacture of Paints. W. V. Wilson and W. B. Priest. 11,276. June 8.
 Removal of Fibrous Matters from Cottonseed. W. P. Thompson. 11,361. June 9.
 Manufacture of Aluminium Tannico Tartaricum. J. Wetter. 11,377. June 9.
 Neutral Aluminium Salicylate and a Soluble Compound of the Same. J. Wetter. 11,380. June 9.
 Effecting Complete Combustion in Furnaces. W. Bracewell. 11,395. June 10.
 Apparatus for Filtering and Purifying Water. J. Y. Johnson. 11,443. June 10.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending June 10th.

Acetate of Lime—

U. States, 434 pkgs. Johnson & Hooper

Acetic Acid —

Holland, 14 pkgs. A. & M. Zimmermann
 " 200 Beresford & Co.

Alkali—

France, 320 c. Arnati & Harrison
 Germany, 40 T. H. Lee
 " 90 A. & M. Zimmermann

Alum—

Belgium, 12 pkgs. Greeff & Co.

Aluminium—

France, £130. Major & Field

Antimony—

Portugal, 2 t. L. & I. D. Jt. Co.
 Australia, 26 Commercial Lighterage Co.
 France, 5 B. & F. Wf. Co., Ltd.
 Portugal, 2 S. Seruza
 Australia, 22 Major & Field
 " 26 Pillow, Jones & Co.
 Germany, 8 W. M. Smith & Sons
 Australia, 26 W. B. Marcus
 A. Turkey, 35 Freuch & Smith

Antimony Oxide—

France, 10 pkgs. M. R. Bevan & Co.

Asbestos—

U. States, £2,080. Furness, Withy & Co.
 Italy, 150 London Asbestos Co.

Barytes—

Belgium, 40 cks. Leach & Co.
 Germany, 19 P. Jantzen
 Belgium, 19 35 bgs. W. Harrison & Co.
 Germany, 2 Beresford & Co.
 Belgium, 24 J. L. Lyon & Co.
 " 40 W. Pope & Co.
 " 48 Burrell & Co.
 Holland, 4 Magee, Taylor & Co.

Caoutchouc—

Savannah, 6 c L. & I. D. Jt. Co.
 Carthagena, 20 Prop. Bull Wf.
 E. Indies, 45 A. Lawrie & Co.
 " 10 M. Samuels
 " 64 Butler's Wf., Ltd.
 U. States, 500 Williams, Torrey & Field
 France, 18 Flageolet & Co.
 Madagascar, 34 Proctor Bros.
 Zanzibar, 120 L. & I. D. Jt. Co.
 E. Indies, 12 Ralli Bros.
 Zanzibar, 20 Patry & Pasteur
 " 60 Clarke & Smith
 Rangoon, 249 J. H. & G. Scovell

Carbonic Acid Gas—

Holland, 25 pkgs. Volcanic Eration Co.

Castor Oil—

E. Indies, 165 cks. Cayzer, Irvine & Co.
 France, 35 brls. Beresford & Co.
 " 20 J. T. Morton
 " 140 Lucas & Spencer's Wf., Ltd.
 Belgium, 9 Fuerst Bros.

Caustic Potash—

France, 60 c. Petri Bros
 " 105 Beresford & Co.
 " 19 drs. 39 pkgs. Carey & Sons
 " 111 Spies Bros. & Co.

Caustic Soda—

Holland, 120 c. Beresford & Co.

Chemicals (otherwise undescribed)

Germany, £6. Burgoyne & Co.
 Holland, 5 G. Rahn & Co.
 Germany, 20 pkgs. Domeier & Co.
 " 37 A. & M. Zimmermann
 " 5 L. & I. D. Jt. Co.
 " 20 Typke & King
 Holland, 19 J. Greig
 Germany, 56 T. H. Lee
 " 9 Phillipp & Graves
 France, 1 Mory & Co.
 U. States, 1 Burgoyne & Co.

Chloride of Lime—

France, 24 pkgs. Mead, Son & Co.

Cream of Tartar—

Italy, 2 pkgs. Galbraith, Pembroke & Co.
 France, 7 F. C. Devon & Co.
 " 5 J. Puddy & Co.
 " 20 B. & F. Wf. Co., Ltd.
 Holland, 30 Middleton & Co.
 Spain, 5 B. & F. Wf. Co., Ltd.
 " 17 W. C. Bacon & Co.
 " 10 C. Christopherson & Co.
 France, 5 G. Ward & Sons

Dextrine—

Germany, 100 pkgs. Hernu, Peron & Co.

Disinfectants—

Belgium, 89 cks. Leach & Co.

Dyestuffs—

Holland, 1 pkgs. W. Hooton & Yates

Annatto

Denmark, 1 pkgs. Sorensen & Co.

Anthracene

Holland, 16 brls. R. Baelz & Co.
 " 163 pkgs. Bur Boulton & Co.

France, 1

Hernu, Peron & Co.

Cochineal

N. Zealand, 44 pkgs. Union L. Co., Ltd.

Canaries, 44

Tyser & Co.

Cutch

Germany, 1,000 pkgs. Wallace Bros.

E. Indies, 200 Ross & Deering

Holland, 10 J. Barber & Co.

Diyl Diyl

Jamaica, 97 pkgs. P. Macfadyen & Co.

Extracts

France, 5 pkgs. T. H. Lee
 Denmark, 8 M. D. Co.
 Brisbane, 8 L. & I. D. Jt. Co.
 Canada, 40 A. J. Humphrey
 Belgium, 24 T. H. Lee
 Denmark, 1 Tegner, Price & Co.
 U. States, 6 Taylor Bros.
 " 1 W. W. Young
 Denmark, 1 Sorensen & Co.

Fustic

Jamaica, 49 t. Hawthorn, Shedden & Co.

" 10 P. Macfadyen & Co.

" 8 D. Henriques & Co.

Gambler

E. Indies, 168 pkgs. R. & J. Henderson

" 873 L. & I. D. Jt. Co.

China, 218 Adamson, Gilfillan & Co.

E. Indies, 1,507 E. Boustead & Co.

" 218 G. Ward & Sons

" 870

Indigo

E. Indies, 67 cts. L. & I. D. Jt. Co.

" 4 Croysdale & Co.

" 15 R. von Glehn & Sons

Myrabolams

E. Indies, 200 pkgs. Pittis & Son

" 667 L. & I. D. Jt. Co.

" 2,049 Baxte & Hoare

Orchella

France, 18 pkgs. H. Gluck & Co.

Sumac

Ita, 250 pkgs. Galbraith, Pembroke & Co.

" 14 H. Lorenz

" 950 J. Kitchin, Ltd.

Tanner's Bark

Natal, 39 t. A. & W. Nesbitt

" 7 Dyster, Nalder & Co.

Adelaide, 131 Baxter & Hoare

Belgium, 66 Leach & Co.

Adelaide, 25 C. C. Bryden & Co.

Turmeric

E. Indies, 500 pkgs. Ralli Bros

Hong Kong, 300 Crosse & Blackwell

China, 2 J. Swire & Sons

Valonia

A. Turkey, 267 t. A. & W. Nesbitt

" 122 Anning & Cobb

" 75 Hicks, Nash & Co.

Melbourne, 101 A. & W. Nesbitt

A. Turkey, 7 G. Spillman

" 100 Boutcher, Mortimore & Co.

" 50 J. Graves

Dyestuffs (otherwise undescribed)

U. States, 5 pkgs. W. W. Young

Farina—

Holland, £50. H. Lorenz

" 200 G. Hornzee

Germany, 150 pkgs. R. G. Hall & Co.

Holland, 50 J. Barber & Co.

" 200 C. Tennant, Sons & Co.

" 25 H. Unihorn

" 100 J. Knill & Co.

" 50 Hernu, Peron & Co.

" 50 Herrmann, Keller & Co.

Flax Skimmings—

Italy, 171 pkgs. Hughes, Chemery & Co.

French Chalk—

Italy, 1,220 c. Magee, Taylor & Co.

Glucose—

U. States, 1 000 c. 1,000 pkgs. Barrett, Tagant & Co.

" 250 250 Props. Hay's Wf.

" 303 50 Fuerst Bros.

" 1,000 1,000 J. Barber & Co.

" 1,510 270 F. J. Warren

" 1,125 200 Makin & Bancroft

France, 500 500 Barrett, Tagant & Co.

Holland, 100 100 Props. Sun Wf.

U. States, 614 100 Linton, Hubbard & Co.

" 800 800 Fellows, Morton & Co.

" 1,300 1,300 A. Roake, Roberts & Co.

" 275 50 Props. Chmblins Wf.

" 165 30 Union L. Co., Ltd.

" 282 50 J. Keiller & Son

" 279 50 W. Balchin

" 270 48 G. White

" 275 50 W. Isted

" 1,375 250 T. M. Duche & Sons

Holland, 140 120 C. Mallett

Germany, 60 600 Baxter & Hoare

" 5 5 Dutrulle, Solomon & Co.

Holland, 180 100 H. Grey, Jr.

U. States, 300 50 Soundy & Sons

" 450 75 Page, Son & East

" 837 150 Props. Scott's Wf.

" 4,30 784 L. Sutro & Co.

" 6,526 2,314 R. G. Hall & Co.

Lead Acetate—

France, 10 pkgs. F. Smit

Holland, 46 Beresford & Co.

Manure—

Germany, 6 t. F. W. Bek & Co., Ltd.

Taital, 1,900 W. Montgomery & Co.

France, 355 A. Hunter & Co.

" 60 J. Burnet & Sons

Methyl Alcohol—

Germany, 5 dms. Elkan & Co.

" 10 cks. Phillipp & Graves

Mica—

E. Indies, 6 pks. W. M. Smith & Sons

Ochre—

France, 85 cks. W. Harrison & Co.

" 84 brls. Magee, Taylor & Co.

Holland, 2 pkgs. Phillipp & Graves

Germany, 6

"

Painters' Colours—

Germany, 23 pkgs. L. & I. D. Jt. Co.

" 14 T. H. Lee

" 1 C. Faust & Co.

" 17 cks. Becker & Ulrich

France, 20 Flageolet & Co.

" 9 Hernu, Peron & Co.

A. Turkey,	50	R. Warner & Co.
Germany,	20	Spies Bros. & Co.
Holland,	33	Hernu, Peron & Co.
Belgium,	2	J. L. Lyon & Co.
France,	7	Bennett S. S. Co., Ld.
"	1	Mory & Co.
Germany,	5	M. Benscher
"	10	C. S. Lovell
U. States,	3	L. & I. D. Jt. Co.
Sweden,	1	ck. W. E. Bott & Co.
Belgium,	34	T. Palmer
"	8	J. L. Lyon & Co.

Paraffin Wax—		
U. States,	200 brls. 101 cs.	H. Hill & Sons
"	473	Williams, Torrey & Co.
"	278	4,196 pkgs J. H. Umar & Co.
"	84	Prod. Brokers Co.

Phosphate Rock—		
France,	240 t.	Lawes Manure Co.
Canada,	150	Anglo Contl. Guano Wks.
France,	1 039	A. Hunter & Co.
U. States,	217	Anglo Contl. Guano Wks.
Belgium,	130	Odams Cheml. Manure Co.
France,	200	Arnati & Harrison

Pitch—		
N. Russia,	770 brls.	Fellows, Morton & H. Hehl
Spain,	118	H. Hehl

Plumbago—		
Germany,	82 cks.	B. Galloway
"	19	Leuty & Kessel

Potash—		
Canada,	136 c.	L. & I. D. Jt. Co.
France,	140	Petri Bros.
"	112	F. W. Berk & Co., Ld.
Canada,	308	Charles & Fox

Potassium Bicarbonate—		
Holland,	45 pkgs.	A. & M. Zimmer- mann

Potassium Carbonate—		
France,	70 c.	Spies Bros. & Co.
Germany,	200	Pillow, Jones & Co.

Potassium Oxymuriate—		
Belgium,	36 pkgs.	G. Boor & Co.
"	18	Arnati & Harrison

Potassium Silicate—		
Holland,	25 pkgs.	Spies Br. s. & Co.

Pumice Stone—		
Italy,	20 t.	Galbraith, Pembroke & Co.
"	16 c.	O'Hara & Hoar
"	40 pkgs.	M. D. Co.

Pyrites—		
Spain,	450 t.	F. C. Hills & Co.

Rosin—		
France,	14 brls.	Chrismar & Co.

Saltpetre—		
Germany,	65 brls.	P. Hecker & Co.
"	20 kgs.	Baiss Bros. & Co.
"	18 cks.	Brown & Elmslie

Sodium Acetate—		
France,	27 pkgs.	S. F. Waters & Co.

Sodium Chlorate—		
France,	112 pkgs.	A. Hughes
"	44	Hernu, Peron & Co.

Sodium Hyposulphite—		
Germany,	100 pkgs.	C. F. Gerhardt

Sodium Sulphate—		
Holland,	17 pkgs.	H. Wallace & Co.
"	30	Newcomb & Son

Stearine—		
Belgium,	38 bgs.	J. Graves
France,	240	H. Walbaum & Tosetti
Belgium,	144	Beresford & Co.
"	295	H. Hill & Sons

Sulphur—		
Italy,	300 t.	W. C. Bacon & Co.
"	3	Galbraith, Bacon & Co.
Belgium,	4	C. J. Capes & Co.
Italy,	2	G. Boor & Co.
"	2	S. Hanson, Son & Co.
"	33	F. Smith
"	52	M. D. Co.
"	10	J. Kitchen, Ld.

Talc—		
France,	£200.	Stobbs, Wilson & Pollard

Tallow—		
N. Zealand,	135 cks.	N. Z. L. & M. A. Co.
"	89	N. M. & A. Co., of N. Z.
"	83	Dalgety & Co.
"	136	Culverwell, Brooks & Co.
"	70	Beresford & Co.
Melbourne,	185	A. B. Curtis & Co.
"	263	Pillow, Jones & Co.
N. Zealand,	286	Nelson Bros.
"	39	Low, Sons & Bedford
France,	13	C. B. Leighton
Holland,	10	Phillipps & Graves
Canada,	31	R. Tucker & Co.
N. Zealand,	135	Flack, Chandler & Co.
"	11	Brown & Elmslie
"	7	Hoare, Wilson & Co.
U. States,	6 brls.	L. & I. D. Jt. Co.
Australia,	136 pps.	A. B. Curtis & Co.
N. S. W.,	92 cks.	Aust. Meat Co.
Hobart,	28	Beresford & Co.
Queensland,	46	Aust. Meat Co.
"	34	Low, Sons & Co.
"	202	Goad, Rigg & Co.
"	47	D. J. Keymer & Co.
"	163	Pillow, Jones & Co.
"	25 pkgs.	Dahmann, Walker & Co.

Tallow & Stearine—		
U. States,	19 cks.	W. W. Young

Tartaric Acid—		
Italy,	8 pkgs.	Galbraith, Pembroke & Co. M. D. Co.
Holland,	41	J. Owen
"	3	F. C. Deven & Co.
Italy,	4	Hopcraft & Co.
France,	27	B. & F. Wf. Co., Ld.
Spain,	23	Novelli & Co.

Ultramarine—		
Belgium,	3 cks. 7 pkgs.	Leach & Co.
"	5	2 brls. W. Harrison & Co.
Holland,	2	Hernu, Peron & Co.
"	21 pkgs.	Haefner, Hilpert & Co.
"	43	Thames S. T. & L. Co.
Germany,	48	G. Steinhoff
Holland,	9	Phillipps & Graves

Varnish—		
Belgium,	3 pkgs.	A. B. Curtis & Co.
"	3	Stobbs, Wilson & Co.
France,	19	Flageolet & Co.
U. States,	39	Taylor Bros.
Belgium,	1	D. C. Thomas

White Lead—		
Belgium,	17 cks.	Leach & Co.
Holland,	15	C. Tennant, Sons & Co.
Belgium,	17	Burrell & Co.
Germany,	20	G. Clifford
France,	9	Colhurst & Harding
Holland,	18	Burrell & Co.
Germany,	21	M. Ashby, Ld.
"	13	S. H. Willoughby
"	4	Haefner, Hilpert & Co.
Holland,	9	A. & M. Zimmermann

Zinc Oxide—		
Holland,	50 cks.	Burrell & Co.
"	275 brls.	M. Ashby, Ld.
Germany,	50	J. Matton & Co.
"	100	M. Ashby, Ld.
"	30	C. Tennant, Sons & Co.

LIVERPOOL.

Week ending June 8th.

Acetate of Lime—		
New York,	909 bgs.	

Acetic Acid—		
Rotterdam,	5 chys.	

Ammonium Sulphate—		
Hamburg,	5,768 bgs.	

Barytes—		
Antwerp,	20 bgs.	J. T. Fletcher & Co.
"	35	18 cks.
Rotterdam,	13	

Bone Meal—		
Bombay,	9,050 bgs.	

Boracic Acid—		
Leghorn,	12 cks.	Pickford & Co.
"	49	3 brls.

Castor Oil—		
Genoa,	6 cs.	Mayer & Co.
"	30	Evans Sons & Co.
Marseilles,	28 brls.	
Calcutta,	250	Petrocchino Bros.
"	1,241	Ralli Bros.
"	250	
Madras,	300 cks.	

Colours—		
Hamburg,	81 cks.	
Antwerp,	1	

Cream of Tartar—		
Marseilles,	10 brls. 5 cks.	
Barcelona,	7	
Bordeaux,	5	
Rotterdam,	4	

Dyestuffs—		
Argols		
Leghorn,	1 ck.	
Divi Divi		
Hamburg,	54 bgs.	
Extracts		
New York,	25 bxs.	
Marseilles,	10 brls.	
Indigo		
Havre,	6 pkgs.	Cunard S. S. Co., Ltd.

Myrabolams		
Bombay,	7,226 bgs.	
Calcutta,	720 pkts.	
Bombay,	200	W. & R. Graham & Co.
"	290	D. Sassoon & Co.
"	347	A. Salmon & Co.
Bimlipatam,	7,172	

Sumac		
Palermo,	95 bgs.	J. Kitchen
"	4,100	T. Crossley & Co.
"	1,100	

Farina—		
Antwerp,	3 bgs.	

Glucose—		
New York,	100 bls. 258 brls.	
Hamburg,	100 cks.	

Limestone—		
Antwerp,	1 rt.	J. T. Fletcher & Co.
"	1 cs.	

Litharge—		
Rotterdam,	4 cks.	

Manganese—		
Bordeaux,	532 bgs.	M'Queen Bros.
Huelva,	304 t.	

Mica—		
New York,	10 brls.	T. Robinson & Sons

Nickel Oxide—		
New York,	41 cks.	

Nickel Sulphide—		
New York,	45 cks.	

Ochre—		
Marseilles,	45 cks. 108 brls.	

Paint—		
Boston,	15 cs. 30 hlf cs.	M. Nicol & Co.
"	25	
Hamburg,	20 cks.	

Paraffin Wax—		
Constantinople,	200 bgs.	
St. John's, N.F.,	1 ck.	C. T. Bowring & Co.

Phosphates—		
Montreal,	315 t.	A. Pearso

Plumbago—		
Hamburg,	1 ck.	
New York,	20 brls.	R Crooks & Co.

Potash—		
New York,	5 cks.	

Pumice Stone—		
Leghorn,	11 cs.	

Pyrites		
Huelva,	1,703 t.	Tennants & Co.
"	2,003	
"	1,322	Matheson & Co.

Rosin		
New York,	2,016 brls.	
Savannah,	2,537	

Soap—		
Naples,	94 cs.	P. Behrends
"	59	Auvery & Co.
Marseilles,	26	

Soapstone—		
Genoa,	200 bgs.	G. G. Blackwell
Bordeaux,	700	"

Stearine—		
Antwerp,	13 bgs.	

Talc—		
Marseilles,	50 bgs.	
Bordeaux,	50 sks.	

Tallow—		
Boston,	689 brls. 40 hhds.	
New York,	200	
Zarate,	496 cks.	J. Nelson & Sons, Ltd.

B. Ayres,	633 pps. 76 hhds.	
Philadelphia,	100 brls.	

Tartar—		
Genoa,	3 brls.	
Naples,	1 ck.	
Bordeaux,	7	

Tartaric Acid—		
Marseilles,	16 cks.	
Rotterdam,	3	Sachse & Klemm
"	25	

Turpentine—		
Savannah,	200 cks.	

Ultramarine—		
Rotterdam,	37 cs. 8 cks.	

White Lead—		
Rotterdam,	55 cks.	

Zinc Ashes—		
Antwerp,	16 cks.	J. T. Fletcher & Co.

Zinc Oxide—		
New York,	100 brls.	
Antwerp,	180	
Rotterdam,	50 cks.	

Zinc White—		
Rotterdam,	150 cks.	O. & H. Marcus

HULL.

Week ending June 10th.

Alkali—		
Flushing,	4 cks.	Wilson, Sons, & Co., Ld.

Aluminium—		
Dunkirk,	5 cs.	Wilson, Sons, & Co., Ld.

Arsenic—		
Hamburg,	20 cks.	Wilson, Sons, & Co., Ld.

Barytes—		
Antwerp,	100 bgs. 34 cks.	Bailey & Leatham
Bremen,	24 cks.	Veltmann & Co.
Antwerp,	45	

Bleaching Powder—		
Antwerp,	29 cks.	Wilson, Sons, & Co., Ld.

Bone Meal—		
Bombay,	1,850 bgs.	

Caoutchouc—		
Hamburg,	2 cs.	C. M. Lofthouse & Co.

Castor Oil—		
Bergen,	23 cs.	Wilson, Sons, & Co., Ld.

Chemicals (otherwise undscribed)		
Stettin,	30 cks.	Wilson, Sons, & Co., Ld.

Dyestuffs— Fustic — Hamburg, 304 bgs. Wilson, Sons, & Co., Ld. Madder — Rotterdam, 1 ck. J. Pyefinch & Co. Myrabolams Bombay, 14,470 bgs. Farina— Harlingen, 365 bgs. Stettin, 120 Wilson, Sons, & Co., Ld. Hamburg, 100 Glucose— New York, 1,285 brls. Stettin, 500 bgs. Rotterdam, 50 G. Lawson & Sons Lime— New York, 387 bgs. Wilson, Sons, & Co., Ld. Naphthylam'ne— Rotterdam, 2 cks. Hutchinson & Son Ochre— Rouen, 44 cks. Rawson & Robinson Paint— New York, 68 cs. Wilson, Sons, & Co., Ld. Phosphate— Ghent, 234 t. Antwerp, 408 bgs. Pitch— Ghent, 54 brls. Wilson, Sons, & Co., Ld. Potash— Rotterdam, 4 bls. Hutchinson & Son Antwerp, 22 dms. Wilson, Sons, & Co., Ld. Rosin— New York, 99 brls. Wilson, Sons, & Co., Ld. Saltpetre— Hamburg, 1 ck. Silica— Antwerp, 20 bgs. Reckitt & Sons Size— Hamburg, 60 bgs. 4 cks. L. & Y. Ry. Co. " 4 Soap— Hamburg, 1 cs. " 26 pks. Wilson, Sons, & Co., Ld. Stearine— Rotterdam, 23 bgs. Hutchinson & Son Antwerp, 30 pks. Wilson, Sons, & Co., Ld. " 48 bgs. Tallow— New York, 60 hhds. 775 brls. Wilson, Sons, & Co., Ld. Bergen, 15 brls. "	Tartaric Acid— Rotterdam, 2 cks. Hutchinson & Son Ultramarine— Rotterdam, 8 cks. G. Lawson & Sons " 20 cs. Hutchinson & Son Bremen, 5 8 Varnish— New York, 2 cs. 16 brls. Wilson, Sons, & Co., Ld. " 2 White Lead— Antwerp, 83 cks. Bailey & Leatham Rotterdam, 13 A. Sanderson & Co. Zinc Oxide— Rotterdam, 35 brls. Hutchinson & Son GLASGOW. <i>Week ending June 15th.</i> Ammonia (Liquid)— Antwerp, 4 dms. Aniline Colours— Rotterdam, 6 cs. 9 cks. J. Rankine & Son Barytes— Hamburg, 22 cks. Bone Meal— Bombay, 3,565 bgs. Castor Oil— Marseilles, 90 cks. 32 pkgs. Antwerp, 86 Chemicals (otherwise undescribed) Hamburg, 2 cs. Colours— Hamburg, 3 cs. Rotterdam, 31 pkgs. J. Rankine & Son Cream of Tartar— Marseilles, 29 cks. Dyestuffs— Alizarine Rotterdam, 47 pkgs. 60 cks. 2 cs. J. Rankine & Son Extracts Baltimore, 20 brls. J. Pattison & Co. " 35 J. Dawson & Son " 6 J. Strang & Son Madder Marseilles, 5 cks. Myrabolams Bombay, 334 bgs. Saffron Valencia, 1 cs. Sumac New York, 50 bgs. Tanner's Bark Marseilles, 730 bls. Turmeric Calcutta, 500 bgs.	Farina— Hamburg, 300 bgs. Delfzhyle, 200 bls. Glucose— New York, 1,496 brls. Manganese— Huelva, 5 bxs. Tharsis Co., Ltd. Ochre— Marseilles, 308 cks. Paint— New York, 10 cs. Paraffin Scale Philadelphia, 1,100 brls. Pitch— Antwerp, 10 cks. Potash— Hamburg, 39 cks. Pumice Stone— Marseilles, 2 cks. Pyrites— Huelva, 1,778 t. Tharsis Co., Ltd. Rosin— New York, 251 brls. Saltpetre— Hamburg, 200 kgs. 13 cks. Soap— Marseilles, 1 cs. Philadelphia, 400 bxs. 200 crts. Stearine— Baltimore, 56 bgs. Rotterdam, 16 cks. J. Rankine & Son Tallow— New York, 50 hhds. 100 trcs. Tar— New York, 300 brls. Tartar— Bordeaux, 9 cs. 1 ck. Varnish— New York, 22 pkgs. Waste Salt— Hamburg, 508 t. White Lead— Rotterdam, 127 cks. J. Rankine & Son Zinc Ashes— Antwerp, 7 cks. Zinc Oxide— New York, 120 brls. Rotterdam, 50 cks. J. Rankine & Son TYNE. <i>Week ending June 10th.</i> Alum Earth— Hamburg, 18 cks. Tyne S. S. Co. Colours— Hamburg, 2 cks. Tyne S. S. Co. Lead Sulphate— Stavanger, 112 cks.	Limestone— Antwerp, 1 ck. Tyne S. Paint— Hamburg, 70 cks. Tyne S. Phosphate— Antwerp, 390 t. Le Chemical Works 239 Pyrites— Huelva, 2,235 t. Saltpetre— Hamburg, 4 cks. Tyne S. Soap— Rotterdam, 2 cs. Tyne S. Stearine— Antwerp, 6 bgs. Tyne S. Tallow— Hamburg, 631 t. Tyne S. Tartaric Acid— Rotterdam, 4 cks. Tyne S. Zinc Oxide— Antwerp, 20 brls. Tyne S. GOOLE. <i>Week ending June 7th.</i> Caoutchouc— Boulogne, 15 cks. Copper Ore— Huelva, 1,140 t. Dyestuffs (otherwise undec.) Boulogne, 19 cs. 18 cks. Ghent, 3 2 Potash— Dunkirk, 72 cks. 42 dms. Hamburg, 8 Rotterdam, 10 Calais, 122 Saltpetre— Rotterdam, 100 bgs. Soda— Rotterdam, 14 dms. Tartaric Acid— Rotterdam, 5 cks. Waste Salt— Hamburg, 454 t. 300 cks. GRIMSBY. <i>Week ending June 1st.</i> Caoutchouc— Antwerp, 3 pkgs. Hamburg, 5 cs. Chemicals (otherwise undec.) Hamburg, 5 cs. 20 cks. Antwerp, 20 pkgs. Dyestuffs (otherwise undec.) Dieppe, 30 cks.
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending June 14th.</i> Acids— Madras, 12 pkgs. £17 Algoa Bay, 2 dms. 14 Alkali— Hobart, 6 c. £4 Rotterdam, 16 23 Champion Bay, 1 t. 3 4 Alum— Cape Town, 3 t. 2 c. £18 Aluminous Cake— Gothenburg, 20 t. 7 c. £55 Ammonia (Liquid)— Mauritius, 13 cs. £15 Auckland, 1 10	Ammonium Carbonate— Auckland, 10 cks. £9 St. Petersburg, 15 t. 10 c. 398 New York, 65 pkgs. 435 Ammonium Chloride— Adelaide, 4 cks. £22 Ammonium Nitrate— Sydney, 6 t. 4 c. £476 Algoa Bay, 21 rns. 147 Ammonium Sulphate— Hamburg, 40 t. £460 Anhydrous Ammonia— Hamburg, 14 cyldrs. £27 Arsenic— Wellington, 15 c. £13	Barium Nitrate— New York, 2 t. 19 c. £57 Bleaching Powder— Cape Town, 1 t. £10 Borax— Dunedin, 1 t. £31 Hamburg, 6 cks. 46 Genoa, 2 t. 5 c. 155 Townsville, 5 10 Boric Acid— B. Ayres, 1 ck. £10 M. Video, 2 14 Carbolic Acid— Kingston, 7 cs. £41 St. Vincen, 20 dms. 17 Rotterdam, 10 brls. 40 cks. 209 Auckland, 20 dms. 18	Cape Town, 12 pkgs. Odessa, 5 cs. Carbon Bisulphide— Rosario, 100 dms. B. Ayres, 100 Caustic Soda— Sydney, 5 t. 2 c. Algoa Bay, 18 Melbourne, 20 14 Chemicals (otherwise undec.) Auckland, 7 bgs. £49 Algoa Bay, 49 Cape Town, 20 cs. Bombay, 19 c. Tangiers, 1 Fremantle, 8 cs. Calcutta, 6 dms.
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of Lime— 14 c. £8		Saltcake— Ghent, 61 t. £90		Bleaching Powder— Bari, 14 brls. Bilbao, 40 kgs. Boston, 1,280 cks. Calcutta, 200 cs. Genoa, 39 Havana, 25 Messina, 29 Montreal, 60 Naples, 28 New York, 1,208 Oporto, 50 Patras, 2 Piræus, 7 San Francisco, 80 Vera Cruz, 70 Malaga, 2 Rouen, 15		Chemicals (otherwise undescribed) Honolulu, 2 cks. £30 Montreal, 1 t. 22 Smyrna, 16 c. 27 Alexandretta, 1 34 New York, 14 12 320 Cairo, 4 125 Antwerp, 1 1 30 Beyrout, 1 1 34 Vera Cruz, 13 7 brls. 85	
ld— 1 c. £9 n, 2 16 2 t. 3 343 10 80 5 40 2 16 2 16 1 8 1 160 2 18 burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Salts of Soda and Lime— New York, 12 cs. 20 kgs. £343		China Clay— Boston, 1,311 t. 10 c. B. Ayres, 20 New York, 120 Philadelphia, 42 Calcutta, 100 cks. Rio de Janeiro, 16 t.		Citric Acid— Seville, 5 c. £40	
luets (otherwise undescribed.) Dye t, 102 pkgs. £1,120		Soda Ash— Melbourne, 20 t. £117 Sydney, 5 30 Victoria, B. C., 4 18 c. 24		Boracic Acid— New York, 6 t. £209 Yokohama, 1 37		Coal Products— Aniline Colours Boston, 7 kgs. 2 bxs. New York, 20 13 cks. Smyrna, 4 cs. 12	
burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Soda Crystals— Algoa Bay, 1 t. 15 c. £7		Borax— Stettin, 2 t. 9 c. £59 Hamburg, 5 10 3 q. 166 Antwerp, 5 16 198 Nantes, 1 1 30 Yokohama, 7 2 12 Manila, 6 2 11		Aniline Oil Barcelona, 15 dms. Genoa, 5 Rouen, 20	
duets (otherwise undescribed.) Dye t, 102 pkgs. £1,120		Sodium Bicarbonate— Hamburg, 1 t. £8 Algoa Bay, 18 c. 7 Victoria, B. C., 11 6 Tangiers, 1 3 8 Sydney, 5 11		Calcium Chloride— New York, 30 t. £80		Anthracene Rotterdam, 19 t.	
burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Sodium Carbonate— Wellington, 1 t. £8		Carbolic Acid— Colon, 75 dms. £34 New York, 12 t. 699 Genoa, 1 10 c. 2 q. 38 Hamburg, 1 18 2 40 N Orleans, 16 6 2 879 Rouen, 2 15 70		Benzol Valparaiso, 40 dms.	
duets (otherwise undescribed.) Dye t, 102 pkgs. £1,120		Sodium Tartrate— Mauritius, 4 c. £14		Caustic Potash— San Francisco, 3 t. 4 c. £82		Creosote Oil Marseilles, 50 brls.	
burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Strontium Nitrate— New York, 2 t. 5 c. £65		Caustic Soda— Adelaide, 50 dms. Bahia, 4 Barcelona, 612 48 cks. Barranquilla, 30 10 Bombay, 29 Boston, 20 Brisbane, 30 Cartagena, Sp., 7 Corunna, 20 E. London, 80 Fiume, 80 Genoa, 293 Hamburg, 135 Hiogo, 400 Hong Kong, 87 Ibrail, 123 Leghorn, 50 Lisbon, 60 Malaga, 183 Malta, 18 Messina, 188 Monterey, 35 Montreal, 220 40 bxs. Nagasaki, 100 Naples, 121 New Orleans, 50 New York, 500 Ontario, 10 Oporto, 90 Rangoon, 18 Rotterdam, 76 San Francisco, 50 40 6 Seville, 236 Stettin, 65 Stockholm, 10 Torrigos, 30 Alicante, 26 Ancona, 151 Antwerp, 18 Aracajou, 10 Bari, 34 B. Ayres, 10 Cadiz, 6 Calcutta, 291 Carril, 40 Ceara, 20 Dunedin, 14 Havana, 50 La Guayra, 20 Nantes, 35 Odessa, 320 Pasages, 150 Philadelphia, 50 Puerto Cabello, 10 Rouen, 52 St. Petersburg, 59 Salonica, 233 Santo Domingo, 56 Sydney, 165 Varna, 56 Wellington, N.Z., 30 Yokohama, 190		Mirbane Oil New York, 20 cs.	
duets (otherwise undescribed.) Dye t, 102 pkgs. £1,120		Sulphur— Sydney, 5 t. £45 Cape Town, 125 cks 35 kgs. 137		Pitch Fayal, 12½ brls. Ibrail, 20 Marseilles, 1,084 t. 5 c.		Tar M. Video, 10 brls. Boharista, Nfd. 15 Bon Avista, 27 Genoa, 1 ck. San Sebastian, 3	
burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Tartaric Acid— B. Ayres, 10 kgs. £51 Calcutta, 2 cs. 27 Wellington, 5 30 Sydney, 1 t. 5 c. 132		Copperas— Aleppo, 5 t. 16 c. £12 Valparaiso, 5 4 1 q. 11		Copper Sulphate— Venice, 57 t. 3 q. £913 Genoa, 19 12 c. 316 Galatz, 25 2 408 Marseilles, 15 1 2 240 St. John's, Nfd, 1 11 26 Danzig, 9 19 2 147 Rouen, 30 19 495 Valparaiso, 7 10 124 Antwerp, 1 8 1 23 Nantes, 9 12 160 Bordeaux, 326 7 1 5,215 Syra, 9 8 Porto Alegre, 19 3 16 Oporto, 2 2 1 35 Naples, 2 6 1 37 Havre, 2 19 50 Lisbon, 22 353 Ancona, 10 15 160 Trieste, 15 240	
duets (otherwise undescribed.) Dye t, 102 pkgs. £1,120		Alum— Bilbao, 1 t. 1 c. £5 Lisbon, 5 1 24 Quebec, 7 6 25 M. Video, 10 19 54 Montreal, 15 16 75 Bari, 3 14 1 q. 20 Havana, 10 7 50 Alexandria, 7 15 46 Galatz, 3 5 19		Disinfectants— Rotterdam, 4 cs. 4 dms. £9		Flowers of Sulphur— B. Ayres, 6 t. 7 c. £63	
burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Aluminium— Yokohama, 2 cs. £214		Fluorspar— Santander, 1 t. 1 c. 3 q. £6		Guano— Las Palmas, 2 t. £5 Pasages, 100 254	
duets (otherwise undescribed.) Dye t, 102 pkgs. £1,120		Ammonium Carbonate— Bremerhaven, 5 c. £7 Genoa, 1 t. 28 Copenhagen, 12 1 q. 18 Trieste, 1 1 29		Gypsum— Lisbon, 5 t. 1 c. £12 New York, 29 7 86		Hydrochloric Acid— Pretoria, 2 cs. £2. 10s.	
burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Ammonium Chloride— Rotterdam, 5 t. 12 c. 3 q. £106 Galatz, 12 18 Antwerp, 1 3 1 24 Trieste, 1 1 2 36 Stockholm, 1 2 1 34 Montreal, 3 5		Iron Sulphate— Ade'aide, 5 t. 2 c. 2 q. £9		Magnesia— Vera Cruz, 1 crt.	
duets (otherwise undescribed.) Dye t, 102 pkgs. £1,120		Ammonium Sulphate— Rotterdam, 50 t. £600 Gr. Canary, 1 12 Las Palmas, 24 18 c. 318 Nantes, 29 19 1 q. 420 Valencia, 187 4 2 2,318 Malaga, 76 9 2 956 Antwerp, 100 9 1,212		Antimony— Halifax, 1 ck. £221		Asbestos— Cavite, 1 roll. £29	
burg, 5 5 841 2 kgs. 1 24 2 t. 3 cks. 396		Barium Chlorate— Hamburg, 16 c. £68		Bichromate— 13 c. £29 1 ck. 21			

LIVERPOOL.

Week ending June 14th.

Magnesium Carbonate— Seville, 1 t. 5 c. £33	Loanda, 2 Manaos, 2 Nasau, 100 dms. 2 New York, 76 2 3 Porto Alegre, 42 20 2 Quebec, 11 dms. San Paulo, 100	Soap— Accra, 66 bxs. Algon Bay, 575 Anamaboe, 100 Asim, 80 Barbadoes, 450 Benguella, 50 Brussels, 800 cs. Cairo, 12 Calcutta, 50 Callao, 3 C. C. Castle, 10 bxs. Cape Town, 100 Cavalry, 56 E. London, 500 Ferrol, 25 Guayaquil, 600 Lagos, 124 Las Palmas, 112 Limassol, 15 cs. Malta, 51 Manaos, 500 Montreal, 225 New York, 1,592 1 Para, 100 Pedro, 40 Port Natal, 50 Quebec, 1 Rotterdam, 5 800 St. Johns, 686 St. Lucia, 237 Shanghai, 11,442 Sierra Leone, 50 Singapore, 510 Teneriffe, 320 3 Trinidad, 1,000 Valparaiso, 30 Vera Cruz, 2 1 ck. Alexandria, 8	Calcutta, 14 New Orleans, 140 Santo Domingo, 134 Singapore, 20
Magnesium Chloride— Montreal, 5 t. 2 c. £25		Sodium Arseniate— Boston, 5 cks.	Sodium Bichromate— Yokohama, 50 cs.
Magnesium Citrate— Rio Janeiro, 10 cs.		Sodium Bicarbonate— Amsterdam, 25 kgs. 111 Ancona, 50 Barcelona, 25 5 brk. Bordeaux, 50 Boston, 325 Bremen, 20 Constantinople, 20 Copenhagen, 117 Genoa, 70 Hamilton, 125 Havana, 40 20 Havre, 185 Honolulu, 20 Lisbon, 40 Montreal, 50 Naples, 10 New York, 200 Odessa, 60 Oporto, 40 Riga, 500 Rotterdam, 20 Salonica, 40 St. Johns, N.B., 535 Seville, 166 10 Wellington, 50	
Magnesium Sulphate— Halifax, 20 brk. Hamburg, 5 cs.		Sodium Chlorate— Antwerp, 35 kgs. Hamburg, 140 50 brk. Rotterdam, 30 Ghent, 10	Sodium Silicate— Baranquilla, 5 brk. Bilbao, 10 Havre, 10 Oporto, 6 cks. Seville, 50 17 Smyrna, 20
Manganese— Hamburg, 15 cks. New York, 20		Sodium Sulphate— M. Video, 21 cks. Leghorn, 13 brk.	Sulphur— St. John's, N.B. 11 t. 18 c. Boston, 353 8 Montreal, 100 1 Philadelphia, 79 1
Manure— Hamburg, 21 t. 6 c. £95 Valencia, 60 16 £134		Sulphuric Acid— Rio Grande do Sul, 15 c. £19 Copenhagen, 15 16	Superphosphate— Nantes, 29 t. 10 c.
Metallic Sodium— Rotterdam, 2 t. 5 c. 1 q. £505		Turpentine— Manila, 25 dm St. Michael, 24	Yarnish— Barcelona, 10 Bilbao, 1 cs. Melbourne, 2 Piraeus, 3 Rio Janeiro, 1 B. Ayres, 6 brk. Constantinople, 1 Genoa, 6 brk. Oporto, 2 Rotterdam, 2 1
Muriatic Acid— Rio Grande do Sul, 3 c. 1 q. £2			
Nitric Acid— Rio Grande do Sul, 2 c. 2 q. £6			
Ochre— Victoria, B.C., 14 cks. Santos, 20 brk.			
Oxalic Acid— Rio de Janeiro, 14 c. £19 Copenhagen, 15 16			
Paint— Antofagasta, 25 cks. Beyrou, 50 kgs. Cadiz, 50 dms. Galatz, 100 4 Havana, 7 Honolulu, 35 Lisbon, 25 Manaos, 1 Para, 8 St. John's, 2 3 San Juan, 100 Santiago, 1 Sierra Leone, 122 11 brk. Sulina, 9 Trieste, 24 Victoria, B.C., 126 Cartagena, N.G., 50 12 Cavite, 44 Constantinople, 1 Havre, 110 Ilo Ilo, 18 2 cs. Kingscove, Nfld., 140 Las Palmas, 60 Manila, 116 12 Mauritius, 600 Mollendo, 6 4 Montevideo, 1 2 Nagasaki, 138 dms. Nasau, 105 7 New York, 2 100 Pernambuco, 2 10 St. Michael's, 24 St. John's, Nfld., 22 8 30 cs. Santos, 10 Stettin, 10 Valparaiso, 3 12 Vera Cruz, 12			
Painters' Colours— Amsterdam, 6 kgs. 6 dms. Bahia, 45 brk. Baltimore, 100 19 cks. Barcelona, 15 Belize, 225 Benin, 4 2 cs. B. Ayres, 50 29 brk. 5 Calcutta, 1 13 cks. Cardenas, 1 Ibrail, 4 8 tcs. Kingston, Jam., 14 Lisbon, 102 Maranham, 4 4 1 cs. Montreal, 14 Oran, 300 Port-au-Prince, 300 Rio de Janeiro, 2 Valparaiso, 50 48 Vera Cruz, 82 Alexandria, 135 20 Ancona, 33 Antwerp, 8 Benguella, 30 Bilbao, 12 Bon Avista, 94 Boston, 5 Bremerhaven, 13 Gothenburg, 35 bgs. Hamburg, 100			
Paraffin Wax— Venice, 75 cs. Rouen, 29			
Phosphorus— Vera Cruz, 1 t. 15 c. 2 q. £226 San Paulo, 2 cs. 29			
Picric Acid— New York, 1 t. 6 c. 1 q. £135			
Potassium Bichromate— Seville, 7 c. 1 q. £15 Alexandretta, 5 Callao, 5 t. 199 Copenhagen, 1 2 3 22 Rouen, 1 3 30			
Potassium Chlorate— Cape Town, 1 t. £52 Bari, 2 130 Naples, 2 8 c. 170 Montreal, 5 2 110 Philadelphia, 3 15 237 Abo, 5 14 Havana, 3 6 Oporto, 18 Sydney, 304 Lisbon, 10 37 Hiogo, 36 10 2,412 New York, 75 4,204 Antwerp, 2 123 Stettin, 5 280 Riga, 2 1 160 Ghent, 1 74 Boston, 7 1 472 Christiania, 4 248 Hamburg, 1 58 Copenhagen, 3 180 Gothenburg, 6 1 36 1 Rotterdam, 1 56 San Paulo, 2 112			
Potassium Prussiate— Montreal, 10 c. £50			
Rosin— Yokohama, 3 cks.			
Salt— Accra, 10 Amsterdam, 144 Anamaboe, 37 10 c. Annatto Bay, 5 Antwerp, 65 Bilbao, 1 Boston, 742 B. Ayres, 16 Calcutta, 3,908 Cape Town, 9 18 Charlotte Town, 530 Faroe Islands, 64 Ghent, 75 Gothenburg, 2 Iceland, 213 New York, 5 Rio de Janeiro, 4 Rotterdam, 60 Salt Pond, 25 Stockholm, 499 11 Westervik, 350 Wyburg, 504 Akassa, 400 Bonny, 10 Ceara, 71 8 Christiania, 10 Copenhagen, 1,041 Faxa Bay, 183 Hammerfest, 500 Honolulu, 3 Livingstone, 333 Manaos, 10 Montreal, 1,075 Mussuca, 25 17 Natal, 10 Aribak, 70 Schelpino, 350 Wellington, N.Z. 17			
Saltpetre— Messina, 7 c. 3 q. £ Para, 5 Havana, 10 11			
Sheep Dip— B. Ayres, 11 t. 5 c. £			
Size— Melbourne, 5 cks.			
		Soda Alkali— Adelaide, 50 b Lisbon, 60 Smyrna, 60	Soda Ash— Baltimore, 10 cks. Boston, 465 91 bgs. Calcutta, 7 100 kgs. Constantinople, 40 brk. Kingsey, M. Video, 1 New York, 424 1 400 Oporto, 64 Pasages, 5 Philadelphia, 376 400 Rio de Janeiro, 2 San Francisco, 176 Santander, 10 Sherbrooke, 96 Smyrna, 2 Toronto, 30 Antwerp, 25 Barcelona, 45 Brisbane, 95 B. Ayres, 20 Callao, 44 Ceara, 0 Christiania, 27 Ghent, 15 Montreal, 20 New Orleans, 33 Puerto Cabello, 10 Santos, 5 Sydney, 180 Valleyfield, 30 Venice, 9 1

13 c.	£31
1 ck.	
8	
66	
30 cks.	
ULL.	
<i>ding June 10th.</i>	
Sulphate—	
505 bgs.	
Wder—	
100 cks.	
6	
25	
4 cks.	
11 dms.	
17	
35	
66	
2	
1 ck.	
<i>(otherwise undescribed)</i>	
cs 2 cks.	
1	
40 pkgs.	
7	
10	
7	
4	
5	
3	
210	
2	
50	
192	
12	
3	
16	
Oil—	
243 c	
100	
150	
762	
151	
270	
10	
720	
636	
50 cks.	
<i>(otherwise undescribed)</i>	
2 bls.	
6 cks.	
1	
228 c.	
16	
153	
41	
43	
461	
92	
355	
231	
12	
24	
35	
lours—	
s. 31 cks. 41 dms. 5 pks.	
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2	
85	
24 pkgs.	
15	
23	
8	
162	
152 pks.	
5	
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482	
3	
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10	
s. 14	
2	
159	
3	
0	
1 pkg.	
60	
12	
cs. 2	

Pitch—	
Antwerp, 200 t.	
Christiansand, 1 ck.	
Dunkirk, 76	
New York, 500 bls.	
Silica—	
Dunkirk, 16 cs.	
Size—	
Flushing, 20 cks.	
Soap—	
Antwerp, 40 cs.	
Bergen, 40	
Copenhagen, 40	
Drontheim, 2	
3 cks.	
Tallow—	
Abo, 2 cks.	
Wasa, 106	
Tar—	
Antwerp, 6 cks.	
Amsterdam, 161	
Abo, 25	
Helsingfors, 30	
Konigsberg, 5	
Wasa, 100	
Varnish—	
Copenhagen, 4 cks. 5 cs.	
Drontheim, 4	
Harlingen, 1	
Rotterdam, 11	

GLASGOW.*Week ending June 15th.*

Alkali—	
Hamburg, 7½ c.	£12
Ammonium Chloride—	
Bilbao, 5 t. 7½ c.	£100
Ammonium Sulphate—	
New York, 32 t. 16½ c.	£450
Bleaching Powder—	
Hong Kong, 15 t.	£150
Borax—	
Quebec, 3 t. 19 c.	£110
Hamburg, 18 cks.	38
Carbolic Acid—	
Christiania, 18 c.	£6
Caustic Soda—	
Calcutta, 33 t. 15 c.	£250
Coal Products—	
Aniline Colours	
Melbourne, 2½ c.	£37. 10s.
Benzol	
Hamburg, 13 dms.	£125
Amsterdam, 139 cks.	675
Croosote Oil	
Christiania, 6 t.	£113
Naphtha	
Amsterdam, 25 brls.	£55
Pitch	
Oporto, 90 t. 3 c.	£100
Hamburg, 178 cks.	92
Quebec, 129 t. 9½	206
New York, 76	130
Amsterdam, 250	435
Tar	
Gothenburg, 11 t. 10 c.	£20
New York, 56	120
Madras, 31	
Calcutta, 51	158
Hamburg, 184 brls. 187 cks.	80
Cottonseed Oil—	
Hamburg, 30 brls.	£160
Dyestuffs—	
Extracts	
Melbourne, 2 t. 10¾ c.	£93. 14s.
Lisbon, 1	£68
Quebec, 1	£52. 14s.
Fustic Extract	
Quebec, 9½ c.	£24
Logwood	
Melbourne, 3 t. 9 c.	£28
Oporto, 4	14½
Lisbon, 7	11½
Quebec, 9	15½
Dyestuffs (otherwise undescribed)	
Lisbon, 1 t. 9½ c.	£85
Linseed Oil—	
Adelaide, 2 t. 2½ c.	£42
Melbourne, 1	17½
Malta, 1	11
Shanghai, 3	7½
Magnesium Sulphate—	
Christiania, 3 t.	£8
Paint—	
Adelaide, 3 t. 9½ c.	£91. 10s.
Melbourne, 3	£52.
New York, 6	2½
Calcutta, 5	55

Painters' Colours—	
Hamburg, 16 cks. 30 tins.	£70
Hong Kong, 3 t. 1½ c.	56
Paraffin Wax—	
Gothenburg, 1 t. 8½ c.	£21
Fiume, 1	19½
Bilbao, 1	25
Potassium Bichromate—	
Antwerp, 10 t. 1½ c.	£396
Christiania, 6	210
Hamburg, 42 cks.	490
Amsterdam, 12	198
Venice, 4	19½
Rosin—	
Rotterdam, 10 brls.	£20
Rosin Oil—	
Melbourne, 2 t. 13 c.	£24
Soda Ash—	
New York, 25 t.	£112
Sodium Bichromate—	
Antwerp, 15 t. 10½ c.	£520
Tallow—	
Antwerp, 7 t. 5½ c.	£89
Amsterdam, 1½	3
White Lead—	
Calcutta, 20 t.	£265
Shanghai, 2	40

TYNE.*Week ending June 10th.*

Alkali—	
Gothenburg, 5 t. 14 c.	
Genoa, 12	11
Amsterdam, 31	17
Rotterdam, 4	6
Riga, 16	5
Alum—	
San Francisco, 20 t. 2 c.	
Ammonia Salts—	
St. Petersburg, 44 t. 1 c.	
Ammonium Chloride—	
St. Petersburg, 1. 12 c.	
Odessa, 4	17
Ammonium Sulphate—	
Hamburg, 30 t. 8 c.	
Antimony—	
Rotterdam, 2 t.	
Arsenic—	
Leghorn, 1 t. 2 c.	
Barium Binoxide—	
Dunkirk, 34 t. 14 c.	
Barium Hydrate—	
Hamburg, 10 t. 5 c.	
Barytes—	
Hamburg, 9 t.	
Stettin, 20	
Riga, 15	10 c.
Bleaching Powder—	
Antwerp, 35 t. 13 c.	
Hamburg, 10	19
Genoa, 21	4
Bilbao, 11	6
Danzig, 18	16
Naples, 2	13
Christiania, 18	5
Amsterdam, 47	5
Copenhagen, 40	18
Aalborg, 1	2
Stettin, 130	12
San Francisco, 108	9
St. Petersburg, 145	16
Rotterdam, 36	16
Drontheim, 13	
Riga, 21	19
Venice, 2	11
Caustic Soda—	
Antwerp, 19 t. 19 c.	
Genoa, 73	16
Bilbao, 25	3
Danzig, 4	19
Naples, 12	17
Christiania, 4	19
Amsterdam, 10	2
Stettin, 10	3
Copenhagen, 4	1
St. Petersburg, 232	3
Riga, 23	
Leghorn, 14	10
Colours—	
Ergasteria, 5 c.	
Naples, 9	
Copper Sulphate—	
Leghorn, 5 t. 1 c.	
Venice, 11	1

Linseed Oil—	
Ergasteria, 8 c.	
Litharge—	
Antwerp, 5 c.	
Amsterdam, 2 t. 4	
St. Petersburg, 6	
Riga, 4	15
Magnesia—	
Hamburg, 2 c.	
Genoa, 15	168 lbs.
Venice, 2	
Paint—	
Antwerp, 1 t. 4 c.	
Genoa, 17	
Ergasteria, 5	
Bergen, 19	
Painters' Colours—	
Bergen, 1 t. 1 c.	
Soda—	
Gothenburg, 5 t. 2 c.	
Genoa, 26	6
Bergen, 1	
Amsterdam, 43	9
Aalborg, 13	8
Rotterdam, 5	
Svendborg, 14	16
Rodo, 1	9
Tromsøe, 2	13
Soda Ash—	
Hamburg, 24 t. 3 c.	
Genoa, 10	5
Danzig, 30	11
Christiania, 9	18
Gothenburg, 13	8
Odessa, 12	12
Venice, 13	
Sodium Hyposulphite—	
Naples, 1 t. 11 c.	
San Francisco, 10	
Sodium Sulphate—	
Gothenburg, 231 t. 11 c.	
Sulphur—	
Hamburg, 100 t.	
Amsterdam, 1	
Stettin, 150	
Rotterdam, 10	
Riga, 25	
Superphosphate—	
Memel, 30 t.	
Tallow—	
Hamburg, 14 c.	
Tar—	
Memel, 1 t. 5 c.	
White Lead—	
Copenhagen, 2 t. 9 c.	
Riga, 2	13

GOOLE.*Week ending June 7th.*

Benzol—	
Ghent, 29 dms.	
Rotterdam, 6 cks.	
Chemicals (otherwise undescribed)	
Ghent, 5 cks.	
Hamburg, 23	
Rotterdam, 9	
Coal Products (otherwise undes.)	
Boulogne, 75 cks.	
Calais, 16	4 dms.
Ghent, 5	
Rotterdam, 124	
Dyestuffs (otherwise undescribed)	
Boulogne, 8 cks. 25 dms.	
Ghent, 1	
Rotterdam, 30	
Logwood—	
Rotterdam, 54 t.	
Manure—	
Boulogne, 14 bgs.	
Hamburg, 400	
Pitch—	
Antwerp, 419 t.	
Boulogne, 12	
Calais, 124	

GRIMSBY.*Week ending June 10th.*

Chemicals (otherwise undescribed)	
Dieppe, 1 ck. 4 pkgs. 100 btl.	
Hamburg, 10	20
Malmo, 22 cs.	
Coal Products (otherwise undes.)	
Dieppe, 1 cs. 107 cks. 2 pkgs.	

PRICES CURRENT.

WEDNESDAY, JUNE 21st,

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—		£ s. d.
Acetic, 25 % and 40 %	per cwt	7/- & 10/6
Glacial	"	50/-
Arsenic S.G., 2000°	"	0 14 6
Fluoric	per lb.	0 0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10
(Cylinder), 30° Tw.	"	0 3 0
Nitric 80° Tw.	per lb.	0 0 1½
Nitrous	"	0 0 1½
Oxalic	nett	0 0 3
Phosphoric, 1750°	"	0 1 2½
Picric	"	0 1 0
Sulphuric (fuming 50 %)	per ton	15 10 0
(monohydrate)	"	5 10 0
(Pyrites, 168°)	"	3 0 0
(free from arsenic, 145°)	"	1 5 0
Sulphurous (solution) S.G. 1025	"	1 6 0
Tannic (pure)	per lb.	0 1 2
Tartaric	"	0 0 11½
Arsenic, white powdered	nett	per ton 13 17 6
Alum (loose lump)	"	5 2 6
Alumina Sulphate (pure)	"	5 0 0
Aluminoferic	"	2 10 0
Aluminium	per lb.	0 4 0
Ammonia, Anhydrous	"	0 1 2
" 880 = 28°	per lb.	0 2 ½
" = 24°	"	0 0 1½
" Carbonate	nett	0 0 3½
" Muriate	per ton	20 0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-
" Nitrate	per ton	39 0 0
" Phosphate	per lb.	0 0 10½
" Sulphate (grey) London	per ton	13 0 0
" (grey) Hull	"	12 18 9
Aniline Oil (pure)	per lb.	0 0 6½
Aniline Salt	"	0 0 6½
Antimony	per ton	45 10 0
" (tartar emetic)	per lb.	0 1 0
" (golden sulphide)	"	0 0 10
Barium Chloride	per ton	7 10 0
" Carbonate (native)	"	3 10 0
" Sulphate (native levigated)	"	45/- to 75/-
Bleaching Powder, 35 %	nett	8 0 0
" Liquor, 7 %	"	3 10 0
Bisulphide of Carbon	"	11 15 0
Chromium Acetate (crystal)	per lb.	0 0 6
Calcium Chloride	per ton	2 5 0
China Clay (at Runcorn) in bulk	"	17/6 to 35/-
Coal Tar Products and Dyes:—		
Alizarine (artificial) 20 %	net	per lb. 0 0 8
Magenta	"	0 3 9
Anthracene, 30 % A, f.o.b. London	per unit	per cwt. 0 1 2
Benzol, 90 % nominal	per gallon	0 1 5
50/90	"	0 1 4
Carbolic Acid (crystallised 40°)	per lb.	0 0 7½
(crude 60°)	per gallon	0 2 5
Creosote (ordinary)	"	0 0 1
(filtered for Lucigen light)	"	0 0 1½
Crude Naphtha 30 % @ 120° C.	"	0 0 7½
Grease Oils, 22° Tw.	per ton	2 5 0
Pitch, f.o.b. Liverpool or Garston	"	1 5 0
Solvent Naphtha, 90 % at 160°	per gallon	0 0 11
"Lucigen" and "Wells" Oils	"	0 0 1½
Copper	per ton	44 17 6
" Sulphate	"	16 10 0
" Oxide (copper scales)	"	42 0 0
Glycerine (crude)	"	13 0 0
(distilled S.G. 1250°)	"	43 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 12 6
" Sulphide (antimony slag)	"	2 0 0
Lead (sheet) for cash	"	10 10 0
" Litharge Flake (ex ship)	"	13 0 0
" Acetate (white)	"	25 15 0
" brown	"	17 10 0
" Carbonate (white lead) pure	"	20 0 0
Nitrate	"	20 0 0
Lime, Acetate (brown)	per ton	5 10 0
" (grey)	"	10 10 0
Magnesium (ribbon and wire)	per oz.	0 0 0
" Chloride (ex ship)	per ton	2 10 0
" Carbonate	per cwt.	1 10 0
" Hydrate	per ton.	17 10 0
" Sulphate (Epsom Salts)	per ton	2 10 0
Manganese, Sulphate	"	17 10 0
" Borate	per cwt.	2 10 0
" Ore, 70 %	per ton	4 10 0
Methylated Spirit, 61° O.P.	per gallon	0 0 0
Naphtha (Wood), Solvent	"	0 0 0
" Miscible, 60° O.P.	"	0 0 0
Oils:—		
Cotton-seed	per ton	23 0 0
Linseed	"	21 0 0
Lubricating, Scotch, 890°—895°	"	7 10 0
Petroleum, Russian	per gallon	0 0 0
" American	"	0 0 0
Potassium (metal)	per oz.	0 0 0
" Bichromate	nett	per lb. 0 0 0
" Carbonate, 90% (ex ship)	per ton	17 0 0
" Chlorate	per lb.	0 0 0
" Cyanide, 98%	"	0 2 0
" Hydrate (Caustic Potash) 80/85 %	per ton	21 10 0
" (Caustic Potash) 75/80 %	"	20 10 0
" (Caustic Potash) 70/75 %	"	20 0 0
" Nitrate (refined)	per cwt.	1 2 0
" Permanganate	per cwt.	3 5 0
" Prussiate Yellow	per lb.	0 0 0
" Sulphate, 90 % (ex ship)	per ton	9 15 0
" Muriate, 80 % (do.)	"	8 0 0
Silver (metal)	per oz.	0 3 0
" Nitrate	"	0 2 0
Sodium (metal)	per lb.	0 0 3
" Carb. (refined Soda-ash) 48 %	nett	per ton 6 0 0
" (Caustic Soda-ash) 48 %	"	4 17 0
" (Carb. Soda-ash) 48%	"	4 15 0
" (Carb. Soda-ash) 58 %	"	5 0 0
" (Soda Crystals)	"	2 17 0
" Acetate (ex-ship)	"	16 10 0
" Arseniate, 45 %	"	12 0 0
" Chlorate	per lb.	0 0 0
" Borate (Borax)	net, per ton.	29 0 0
" Bichromate	per lb.	0 0 0
" Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton	"	11 0 0
" (74 % Caustic Soda)	"	10 10 0
" (70 % Caustic Soda)	"	9 10 0
" (60 % Caustic Soda)	"	8 10 0
" (60 % Caustic Soda, cream) (f.o.b.)	"	8 10 0
" Bicarbonate	"	6 10 0
" Hyposulphite	"	6 10 0
" Manganate, 30%	"	16 0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0 0 0
" Nitrite, 98 %	per ton	27 10 0
" Phosphate	"	15 0 0
" Prussiate	per lb.	0 0 0
" Silicate (glass)	per ton	5 0 0
" (liquid, 100° Tw.)	"	4 0 0
" Stannate, 40 %	per cwt.	3 0 0
" Sulphate (Salt-cake)	per ton.	1 10 0
" (Glauber's Salts)	"	1 10 0
" Sulphide	"	8 10 0
" Sulphite	"	6 10 0
Strontium Hydrate, 100%	"	8 10 0
Sulphocyanide Ammonium, 95 %	per lb.	0 0 0
" Barium, 95 %	"	0 0 0
" Potassium	"	0 0 0
Sulphur (Flowers)	per ton.	8 0 0
" (Roll Brimstone)	"	6 10 0
" Brimstone: Best Quality	"	4 0 0
Superphosphate of Lime (26 %)	"	2 0 0
Tallow	"	27 10 0
Tin (English Ingots)	"	91 10 0
" Crystals	per lb.	0 0 0
Zinc (Spelter)	per ton	17 10 0
" Chloride (solution, 96° Tw.)	"	5 0 0

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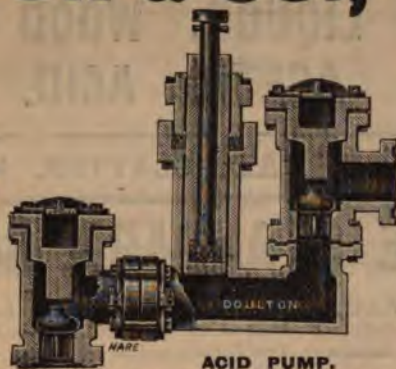
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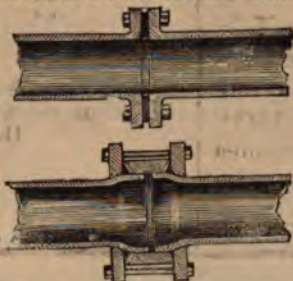
Liverpool: Exchange Chambers
 Glasgow: West Campbell-st.

WALKER BROS., NEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKER'S PATENT
COMPRESSING ENGINES.
COMPRESSING ENGINES.
70,000 I.H.P. ALREADY AT WORK.

WALKER'S PATENT (1898)
AUST AND BLAST FANS.

MEDAL, LONDON, 1892 (International Horticultural Exhibition).
STEEL TUBES For Gas, Water, Steam, Hydraulic, Refrigerating,
Compressed Air, and Heating Purposes. In Stock to
8 in. diameter. IRON & BRASS PUMPS, OIL PIPES, &c.
TINGS OF ALL KINDS. Spencer's Patent Pipe Joints.



JOHN SPENCER,
Tube Works, WEDNESBURY.
Office: 14, Great St. Thomas Apostle, E.C.

W. GREEFF & CO.,
INCING LANE, LONDON, E.C.
IMPORTERS OF

BEST SULPHATE OF ALUMINA.
TARTAR EMETIC. ANTIMONY SALTS.
TAL ALUM. HYPOSULPHITE OF SODA.
UGAR OF LEAD, WHITE AND BROWN.
OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
S, NITRATE & CHLORIDE OF BARIUM, &c.

RLESS, CAPEL & LEONARD,
HOPE CHEMICAL WORKS,
kney Wick, LONDON, N.E.
ners of Benzoline and Naphtha Distillers,
PETROLEUM IMPORTERS, &c.

oline sp. gr. '650, '680, and of any specific gravity suitable for carburetting
um Ether of constant boiling points, Cleaning Spirit, quite free from
yers' use), Heavy Benzine Spirit, sp. gr. '725 (specially distilled for dry
urning Naphtha and Solvent Naphtha, Petroleum Naphtha perfectly
deodorized, Autoline, &c., &c.

SAMPLES AND PRICES UPON APPLICATION AS ABOVE.

Tenders.

CLEVEDON GAS COMPANY.
TENDERS FOR COAL TAR.

TENDERS are invited for the sur-
plus Tar from these Works for a term of Two Years,
from January 1st, 1893. Sealed tenders to be addressed to
the Chairman, Gas Works, Clevedon, by the last day
of this month. By order,
SAMUEL DAWES,
MANAGER.

THE HAVERHILL LOCAL
BOARD have for disposal a quantity of Tar.—
State price delivered at Haverhill Station to Mr. B.
Gibson, Manager, Gas Works, Haverhill.

NORTH EASTERN RAILWAY.
CREOSOTE OIL.

THE DIRECTORS are prepared to
receive tenders for the supply of 200,000 to 300,000
Gallons (or any part thereof) of CREOSOTE OIL of the very
best quality, free from all impurities, and delivered at this
Company's Creosote Works, North Dock, Monkwear-
mouth; or Greenland, West Hartlepool as may be required.
Specification and Form of Tender may be obtained on
application to Mr. John Snowdon, Permanent Way Store-
keeper, Central Station, Newcastle-on-Tyne.
Sealed Tenders, marked "Tender for Creosote Oil"
must be sent to the Secretary, at York, not later than noon
on Monday, the 23rd instant.
The Directors do not bind themselves to accept the
lowest or any tender.

C. N. WILKINSON,
SECRETARY.

York, 12th January, 1893.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free, on the day of their receipt.

A GENTLEMAN (Ph.D. Germany)
with many years' chemical experience, a special
training in organic research and technical chemistry, and
a thorough knowledge of German, desires a position in a
Chemical Factory.—Address H 26, Chemical Trade
Journal Office.

COMPETENT YOUNG CHEM-
IST, having gained distinctions at the Karlsruhe
Polytechnicum, desires situation as Chemist; best refer-
ences, good knowledge of Analysis and experienced in
making of colours, chemicals, and the gas industry.—
Address B.J. 16, Chemical Trade Journal Office.

WANTED SITUATION by thor-
ough practical man with 30 years' continuous
experience in the economical manufacture of Oil of Vitriol,
Sulphuric, Hydrochloric and Nitric Acids, Saltcake, Bleach,
and Alkalies; good draughtsman, engineer, and erector
of modern plant, accustomed to dealing with artisans and
process men; prefers going abroad; first-class references.
—A.B., Mr. I. Ibbotson, Wesley Grove, Levenshulme,
Manchester.

GERMANY AND AUSTRIA.—To
Exporters and Importers of Chemicals, Minerals,
and Metals, advertiser offers his services in representative
capacity.—Fred L. Brotherton, Plan 4, Hamburg.

MARK FINCH, Chemical Engineer
and Expert, supplies Plans and superintends the
erection of Chemical Works, the alteration and adaptation
of old plant, and undertakes the supervision of the working
of apparatus which is not giving entire satisfaction, with a
view to its improvement.—Address Mark Finch, Rowsham,
Aylesbury.

FINE CHEMICAL BALANCE,
by Oertling, 16-inch beam, 6-inch pans, to carry
1½ to 2 lbs. in each pan, and turn with 1-1000 grain,
agate knife edges and planes, divided beam, movers for
sliding weights, in glass case with levelling screws, and
Oertling's weights in box complete from 6000 grains
downwards. Cost nearly £20. Price £10.—Can be seen
by appointment, Siegel, 102, Fortress-road, Kentish Town
London, N.W.

ANALYTICAL CHEMIST wanted
for March 1st, to test Milk Samples, by a large firm
of Creamery Proprietors in the South of Ireland; must
reside there and give his whole attention to same, but
would probably have time for private study.—Apply,
stating salary required, qualifications, &c., &c., to M. 16
Chemical Trade Journal, Manchester.

Miscellaneous.—Cont.

TANK WAGONS.—Wanted to purchase at once two or three Tank Wagons suitable for the carriage of Tar.—Apply F 27, *Chemical Trade Journal Office*.

SAFETY LAMP, Mills' make, soiled, but new, 13 Davy, 33 Stephenson, 2s. 3d. each to clear.—Ashton, Norfolk-street, Sheffield.

TWO Disintegrators, One Edge Runner Mill, several Stone and Ore Breakers, Two Roller Mills and One Mixing Machine good as new.—S Mason & Co., Stone Breaking and Grinding Machine Makers, Brandon-street, Leicester.

AS Manager or Foreman, Chemical, Tar, Benzol, &c., Works; many years' practical experience; can plan, erect new, or modernise old works; willing to take an interest.—Address "Naphtha," *Chemical Trade Journal Office*.

OXIDE WORKS For Sale, Leasehold, (Freehold can be bought). Oxide Colour Works, practically in working order, fully equipped to make from 10 to 12 tons weekly of Indian and Turkey Reds from Copperas with patented processes.—Apply (in the first instance by letter), to R. C. Ponsonby, solicitor, 1, Great George Street, London, S.W.

LANCASHIRE Tar Products.—Capitalists and tar distillers are invited to join the advertiser in buying existing works, erecting new ones, and forming a Company.

Wanted, an Experienced Chemist and Manager. Apply to C. Dasières, 16, Philpot-lane, London, E.C. 22 years connection in tar trade.

FOR Sale. Two Johnson's Filter Presses, one with 12 plates 18 in. diameter, cloths, air pump and guage, and one with 6 plates 13½ in. square. Price £10, and £6, respectively.—Apply to R. W. Andrews 24, Gray's Inn Road, London.

VATS, Squares, Rounds, and Wooden Vessels of every description. Manufacturing Chemists who may be requiring anything in this direction would do well to write us for a quotation, as having had an extensive experience with regard to this class of work we are of course in a position to compete most favourably with anyone in the trade.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

SQUARES, Rounds, Vats, Tubs, &c. We have on hand an immense and most varied stock of the above, recently taken out of Breweries, Distilleries, &c., and we would respectfully invite Manufacturing Chemists who may be requiring anything in this direction to communicate with us.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

QUOTATIONS WANTED for Fluid Magnesia Plants, of all sizes, with capacity, and to state clearly how strong the plants are capable of making Fluid Magnesia—i.e. how many grains MgO per fluid ounce it is possible to obtain. "Magnesia," *Chemical Trade Journal Office*.

A SMALL Sulphate of Ammonia Apparatus for Sale, column form, capacity about 30 cwts. to two tons weekly, with saturator and all complete. Address "Alpha," *Chemical Trade Journal Office*.

GAS Engine for Sale (Crossley-Otto) ½ h.p. nominal, 2 h.p. indicated, only been used a fortnight, with anti-fluctuator, silencer, water tank, floor tray and all complete; also a nine feet length of 2 inch shafting, two brackets, four fixed pulleys, and a pair of fast and loose. Address Box 306, *Chemical Trade Journal Office*.

TWO Musgrave's Slow Combustion Stoves for sale, each suitable for very large rooms, say 100 ft. by 40 ft., one with ornamental casing, one without. May be seen on application by letter to Box 308, *Chemical Trade Journal Office*.

SULPHURIC Acid from Pyrites for Sale, 500 tons, 150° Tw. Best offers wanted f.o.r. or boat Lincolnshire.—Address L 199, *Chemical Trade Journal Office*.

SHOW Cases for Sale.—Four Show Cases, each 12 in. deep and seven feet high, with two plate glass sliding doors, lock and key. Size of plate glass, 4 feet by 2 feet each panel. Each case has two drawers in pedestal, ebonized. Suitable for exhibiting samples of chemicals in office. Address Box 307, *Chemical Trade Journal Office*.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool. [16]

CHARCOAL, SCARLET RED LIQUOR, IRON LIQUOR, WOOD ACID, ACETIC ACID.

GEO. WHITEHEAD, CLAYTON, MANCHESTER

STONEWARE ACID PANS, COCKS, RECEIVERS, JAS. STIFF & SONS

LAMBETH, LONDON, S.E.,
MANUFACTURE EVERY KIND OF VITRIFIED STONE
CHEMICAL APPARATUS
INSULATORS, BATTERY JARS, POROUS CELLS, BOTTLES,
CONDENSING WORMS, PLUMBAGO & FIRE-CLAY CRUCIBLE

PURE SULPHUROUS ACID SULPHITES AND BISULPHITES OF LIME, SODA FOR EXPORT.

S. KEYS & CO. Limited, WEST BROMWICH

ACCURATE STANDARD SOLUTIONS

Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of Solutions for every variety of Analysis by Volumetric Methods, and on any Measurement; also Indicators, Test Papers, and all requisites.

Special Prices quoted to Large Consumers. Price List on application to

FRANCIS SUTTON & CO., NORWICH

BLAYDON MANURE AND ALKALI COMP.'S PURE WHITE SULPHATE OF ALUMINA BLANC FIXE, CHLORIDE, NITRATE AND SULPHIDE OF BARIUM.

SOLIDIFIED SULPHURIC ACID (SUPER SULPHATE OF SODA).

UNITED ALKALI COMP.'S
HYPO-SULPHITE OF SODA,
Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

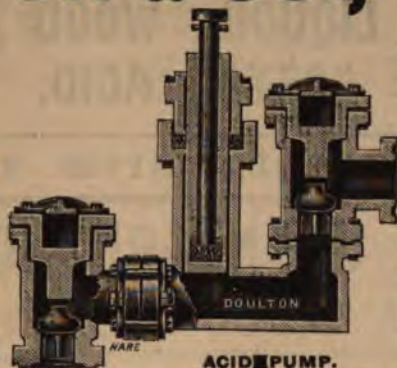
Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE

CANNINGTON, SHAW & CO., LIMITED

CARBOYS

SHERDLEY GLASSWORKS, ST. HELEN

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

DOULTON & CO.,LAMBETH,
LONDON, S.E.FACTURERS OF
NEWARE
CHEMICAL
APPARATUS
OF
DESCRIPTION.DE LISTS
PLICATION.**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.

ACID PUMP.

ROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 6, Rue de Paradis, Paris.**MICAL APPARATUS. PURE CHEMICALS.**

ng's & Becker's Balances.

A number always in stock.
icher & Schull's Filter Paper.as with Sand-blasted Labels.
tible sand-blasted labels printed on customers'
own bottles.

SPECIALITIES:—

HARRIS'S POLARIMETER for
WHITE LIGHT or Sodium Flame.
HARRIS'S MICROSCOPES.
CYTOX HAND CAMERA.
BAYLEY'S CARBON TUBES.(upwards of 200 pages and 1,200 illustrations), and special circulars of all the above,
FREE ON APPLICATION. Estimates Furnished.HARRIS & CO., Ltd., 144 and 146, Edmund Street, BIRMINGHAM.
Contractors to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.BLAYDON MANURE AND ALKALI COMP.'S
E WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.**LIDIFIED SULPHURIC ACID**
(SUPER SULPHATE OF SODA).

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.

ts: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

RUSHTON, IRVING & CO.,
INGTON HILL, LIVERPOOL.

Specialists in Plant and Machinery for

nts, Colours, Chemical Precipitates,
White Lead, Minerals, Artificial
Manures, &c.**Tenders.**THE Corporation of Middleton are
prepared to receive Tenders for the supply of the
SULPHURIC ACID required at the Gas Works, during
the ensuing year. Further particulars may be obtained
from Mr. Duxbury, Gas Manager. The Corporation do
not bind themselves to accept the lowest or any tender.
Tenders addressed to the Chairman of the Gas Committee,
to be delivered at my office on or before Wednesday, the
15th day of February, 1893, endorsed "Tender for Sulphuric
Acid."FREDERICK ENTWISTLE,
Town ClerkTown Hall, Middleton,
near Manchester, 23rd Jan., 1893.**Miscellaneous.**Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free, on the day of their receipt.**TO BE SOLD CHEAP.—Vertical**Boiler, 12 ft. by 4 ft. 6 in.; nearly new, working at
80 lbs., with Davidson Steam Pump; Wooden Tanks, 10ft.
by 4 ft. 6 in. by 3 ft. 6 in., lined with 8 lbs. of lead and
some un-lined. Herbertz Patent Cupola suitable for iron-
foundry or for cleaning copper slags.—Address "Plant,"
Chemical Trade Journal Office.**A CHEMIST requires Work as**Demonstrator or Assistant in Research Laboratory.
He has had practical experience in Research, Analytical,
Bacteriological Laboratories. He is a certified student of
the Technical College, Finsbury, having worked there
four years, during part of his time, he assisted in teaching
students. He has a thorough knowledge of Inorganic but
especially of Organic Chemistry.—Address R. T. C.
Evans, Swans Nest Hotel, Stratford-on-Avon.**GERMANY AND AUSTRIA.—To**Exporters and Importers of Chemicals, Minerals,
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TO BE SOLD, the LANCASHIRE

MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool. [16]

AMMONIA, all qualities and

strengths. Enquiries solicited. BROTHERTON & Co., Leeds and Wakefield.

SECOND-HAND Beer Hogsheads

and Barrels for sale cheap. Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

GOOD Second hand Rum Puncheons

for sale, cheap. Apply to Campbell & Swainston, Argyll Wharf, Thomas-street, Limehouse, London, E.

VATS and Casks of all sizes, new

and second hand; a large quantity in stock. Prices given for repairs and alterations.—Campbell & Swainston, Ltd., Argyll Wharf, Limehouse, London, E.

PAIR of Chemical Balances, plated

and brass, in glass case, quite new, very cheap—Campbell & Swainston, Ltd., Argyll Wharf, Limehouse, London, E.

Advertisements which arrive too late for insertion on this page will be found on first page of Matter opposite Leading Article).

HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of Supplement of the first and third *Chemical Trade Journal* of each month.

CROWN Svo.

SILK DYEING,**PRINTING AND FINISHING,**

By GEORGE H. HURST, F.C.S.,
Member of the Society of Chemical Industry; of
the Society of Dyers and Colourists, Lecturer
on the Technology of Painters' Colours,
Oils and Varnishes, at the Manchester Technical
School,

WITH NUMEROUS COLOURED PATTERNS.

LONDON: WHITTAKER & CO.,
2, WHITE HART ST., PATERNOSTER SQUARE.
And GEORGE BELL & SONS.

ASSAYER.**B. KITTO, F.I.C.,**

30 & 31, ST SWITHIN'S LANE,
LONDON, E.C.

CHARCOAL, SCARLET RED LIQUOR, IRON LIQUOR, WOOD ACID, ACETIC ACID.

GEO. WHITEHEAD, CLAYTON, MANCHESTER

ACCURATE STANDARD SOLUTIONS

Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of Solutions for every variety of Analysis by Volumetric Methods, and on any Measurement; also Indicators, Test Papers, and all requisites.

Special Prices quoted to Large Consumers. Price List on application to

FRANCIS SUTTON & CO., NORWICH

PURE SULPHUROUS ACID SULPHITES AND BISULPHITES OF LIME, SODA FOR EXPORT.

S. KEYS & CO. Limited, WEST BROMWICH

Respirator or Lung Preserver

To Protect the LUNGS & THROAT from Dust, Poisonous Gases & other Impurities

PREVENTING DISEASE AND PROLONGING LIFE.



Adapted for use in Works, Glass and Blast Furnaces, and in
Paint and Colour Works, and Pulverising Works,
and Snuff Factories, Iron Smelting and Refining
Furniture Factories, Paper &c., &c.

Air is inhaled through sponge and given out through automatic valve.

Price, Carriage Paid
6s. each.

GUSTAVE ZIMMER, 82, Mark Lane, London

CANNINGTON, SHAW & CO., LIMITED**CARBOYS.**

SHERDLEY GLASSWORKS, ST. HELEN

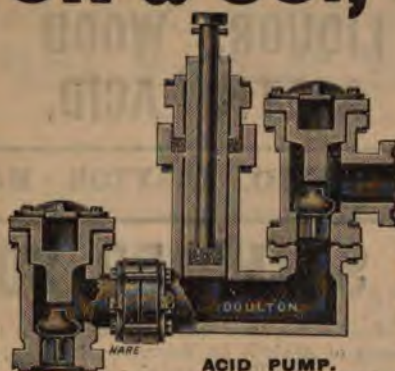
Liverpool Exchange Chambers
Glasgow: West Campbell St.

Boulton & Co.,LAMBETH,
LONDON, S.E.SUPPLIERS OF
WARE
ICAL
ATUS

SCRIPTION.

LISTS

ICATION.



ACID PUMP.

**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.SHOWROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 6, Rue de Paradis, Paris.**ICAL APPARATUS. PURE CHEMICALS.**

& Becker's Balances.

number always in stock.

r & Schull's Filter Paper.

with Sand-blasted Labels.

and-blasted labels printed on customers'
own bottles.

SPECIALITIES:—

HARRIS'S POLARIMETER for

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HARRIS'S MICROSCOPES.

CYTOX HAND CAMERA.

BAYLEY'S CARBON TUBES.

wards of 200 pages and 1,200 illustrations), and special circulars of all the above,
FREE ON APPLICATION. *Estimates Furnished.*

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Suppliers to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.

BLAYDON MANURE AND ALKALI COMP.'S

WHITE SULPHATE OF ALUMINA,
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ROBERTSON, IRVING & CO.,
ROBERTSON HILL, LIVERPOOL.

Specialists in Plant and Machinery for

s, Colours, Chemical Precipitates,
White Lead, Minerals, Artificial
Manures, &c.**Tenders.**

COCKERMOUTH LOCAL BOARD.

GAS DEPARTMENT.

THE General Purposes Committee of
the above Board invite TENDERS for the surplus
TAR and AMMONIACAL LIQUOR to be produced
during twelve months, commencing 1st April next.Further particulars on application to the undersigned.
Tenders to be sent in not later than the 6th of March
next, endorsed "Tar and Liquor."

ER. W. SMITH, Gas Manager.

Feb. 18th, 1893.

Miscellaneous.Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free, on the day of their receipt.SITUATION Wanted as Muriate of
Ammonia Maker. Address G. Backhouse, 30, Ross-
street, Ordsall-lane, Regent-road, Salford, Manchester.WANTED, a Chemist who thor-
oughly understands the practical working of
Sulphuric Acid Chambers, the manufacture of Sulphate of
Ammonia, and Benzol. Address H 36, *Chemical Trade
Journal* Office.FILTER PRESS for sale (Johnson
Pattern). 12 Square Plates (13 inches) Pump-gauge,
cloths complete equal to new. Price £13.—R. W. Andrews,
24, Grays Inn Road, London, W.C.WOOD Distilling.—Wanted, a Situ-
ation by a Practical Man, thoroughly understands
the manufacture of white and brown acetates of lead,
acetates of soda and lime, solvent and miscible naphtha,
charcoal, &c. Would have no objections to going abroad.
Address J. R., 13, Crwys-road, Roath, Cardiff.

AMMONIA.

FOR SALE, the Works fitted with
modern machinery for the manufacture of Liquid
Ammonia. Abundant supply of good Water. Close to
station. Inquiries to D. C. Williamson, auctioneer, Nelson
Square, Bolton

OLIVOLINE and ATEROLINE.

Two perfect non-gumming Lubricating Oils. 20
years in use. Made to suit every class of machinery
ashore or afloat. Gentlemen who can influence business
are offered liberal terms. Sole Makers, DUNCAN, WATSON
& Co., Oil Manufacturers and Mill Furnishers, Dashwood
House, New Broad-street, London, E.C.WANTED, Experienced Man who
understands the manufacture of Sulphate of
Ammonia, Sulphuric Acid, and Benzole. Address T 39,
Chemical Trade Journal office.AS Manager or Foreman, Chemical,
Tar, Benzol, &c., Works; many years' practical
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FAIRBURN & HALL, ^{Chief}_{Office} 63, Royal Exchange, MANCHESTER.



LONDON: 99, Fenchurch St., E.C. LEEDS: 18, Swinegate. HULL: 38-42, Waterhouse Lane. GLASGOW: 129, Trongate.

OVER 25,000 ARE WORKING.

Tenders.

THE SHREWSBURY GAS LIGHT COMPANY.
DISPOSAL OF SURPLUS TAR.

THE Directors of the above Com-
pany are desirous of receiving TENDERS for the
purchase of the surplus TAR made at their Works during
the Year commencing July 1st, 1893.
The estimated quantity for disposal is about 950 tons per
annum.
Tenders must be made on Forms (containing further par-
ticulars), which may be obtained on application at the
Company's Works, or by post, and must be sent in to the
undersigned not later than the 17th day of June, 1893.
The Directors do not bind themselves to accept the
highest or any Tender.

By order,
WM. BELTON, A.M.I.C.E.,
Secretary and Manager.

Gas Works, Shrewsbury,
18th May, 1893.

TAR AND AMMONIACAL LIQUOR.

THE Directors of the Scarborough
Gas Company invite TENDERS for the purchase
of the AMMONIACAL LIQUOR and surplus TAR
produced at their Works for a term of One Year from the
1st day of July, 1893.

Conditions of Tender and necessary particulars will be
supplied on application to the undersigned, to whom
Tenders, in accordance with such conditions and properly
endorsed, must be delivered not later than Saturday, the
3rd day of June next.

The Directors do not bind themselves to accept the
highest or any Tender.

By order,
WM. J. MOON,
Secretary and Manager.

Gas Offices, Scarborough,
12th May, 1893.

TO TAR DISTILLERS.

THE Atherton Local Board invite
TENDERS for the TAR to be produced at their
Gasworks up to the end of June, 1894; quantity about
300 tons.

Tenders, under cover, to be delivered to me not later
than Monday, May 22.

DANL. SCHOFIELD,
Clerk.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free, on the day of their receipt.

CHEMIST FOR PHOSPHORUS WORKS.

A THOROUGHLY reliable manufacturer of
Phosphorus wishes to engage a Chemist
who has had some experience in the laboratory of
a Phosphorus Works, and can be depended upon
for accurate analyses of the materials and pro-
ducts. State age, experience, whether married
or single, present salary, and what salary expected
for permanent position. Also reference, other
than Phosphorus Manufacturer, as to character
and ability. Replies will be treated in strictest
confidence.—Address C 143, Reuter's Telegram
Co., Ltd., 25, Old Jewry, London, E.C.

DRAUGHTSMAN.—A young
DRAUGHTSMAN with several years good experi-
ence in chemical plant, desires a situation as junior in
chemical works; wages required, 25s.—Address, W 135,
Chemical Trade Journal Office.

ADVERTISER, speaking Spanish
and Portuguese fluently, is open to an engagement
as Manager of Copper Cementation or Extraction
Works, home or abroad; excellent testimonials; last
appointment held for 10 years. Also practically acquainted
with management of Claudet's silver process. Is
thoroughly qualified as chemist and assayer.—Address B
54, Chemical Trade Journal office, Manchester.

VATS and Casks of all sizes, new
and second hand; a large quantity in stock. Price
given for repairs and alterations.—Campbell & Swainston
Ltd., Argyll Wharf, Limehouse, London, E.

SECOND-HAND Beer Hogsheads
and Barrels for sale cheap. Campbell & Swainston
Ltd., Argyll Wharf, Limehouse, London, E.

GOOD Second-hand Rum Puncheons
for sale, cheap. Apply to Campbell & Swainston
Argyll Wharf, Thomas-street, Limehouse, London, E.

Miscellaneous.—Cont.

SULPHURIC Acid from Pyrites for Sale, 500 tons, 150° Tw. Best offers wanted for or boat Lincolnshire.—Address L. 199, *Chemical Trade Journal Office*.

HYDROCHLORIC Acid.—Wanted competent Foreman, capable of undertaking the erection of Plant.—Apply A. Boake, Roberts & Co., Stratford, London, E.

MANAGER or Foreman Wanted, English or German, who thoroughly understands the German process of the extraction of Cyanides from Spent Oxide.—"Cyanide," *Chemical Trade Journal office*. Manchester.

AS Manager or Foreman, Chemical, Tar, Benzol, &c., Works; many years' practical experience; can plan, erect new, or modernise old works; willing to take an interest.—Address "Naphtha," *Chemical Trade Journal Office*.

OLIVOLINE and ATEROLINE. Two perfect non-gumming Lubricating Oils. 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

TWO Disintegrators, one Edge Ruiner Mill, several Stone and Ore Breakers, two Roller Mills, and one Mixing Machine, good as new. S. Mason & Co., Stone Breaking and Grinding Machine Makers, Brandon Street, Leicester.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,430 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

JOHNSON'S Filter Press For Sale, 18 18 in. plates and cloths complete; good condition and very cheap to clear.—R. W. Andrews, 24, Grays Inn Road, London, W.C.

SHOW Cases for Sale.—Four Show Cases, each 12 in. deep and seven feet high, with two plate glass sliding doors, lock and key. Size of plate glass, 4 feet by 2 feet each panel. Each case has two drawers in pedestal, ebonized. Suitable for exhibiting samples of chemicals in office. Address Box 307, *Chemical Trade Journal office*.

AMMONIA. **FOR SALE, the Works** fitted with modern machinery for the manufacture of Liquid Ammonia. Abundant supply of good Water. Close to station. Inquiries to D. C. Williamson, auctioneer, Nelson Square, Bolton.

QUOTATIONS WANTED for Fluid Magnesia Plants, of all sizes, with capacity and to state clearly how strong the plants are capable of making Fluid Magnesia—i.e. how many grains MgO per fluid ounce it is possible to obtain. "Magnesia," *Chemical Trade Journal Office*.

QUOTATIONS given for Fluid Magnesia of highest possible strengths for manufacturing or pharmaceutical purposes; also for any quantity of Carbonate, Calcined or Hydrate of Magnesia Buyers' samples matched.—The Washington Chemical Co., Washington Station, Co. Durham.

A SMALL Sulphate of Ammonia Apparatus for Sale, column form, capacity about 30 cwt. to two tons weekly, with saturator and all complete. Address "Alpha," *Chemical Trade Journal office*.

VATS, Squares, Rounds, and Wooden Vessels of every description. Manufacturing Chemists who may be requiring anything in this direction would do well to write us for a quotation, as having had an extensive experience with regard to this class of work we are of course in a position to compete most favourably with anyone in the trade.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

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AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Leeds and Wakefield.

HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of the first and third *Chemical Trade Journal* of each month.

DO YOU USE STANDARD SOLUTIONS?

If so, write to us for our latest circular and price list, we guarantee all to be absolutely correct. CATALOGUE FREE ON APPLICATION.

PHILIP HARRIS & CO., Ltd., 144 and 146, Edmund Street, BIRMINGHAM.
Contractors to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.

ACCURATE STANDARD SOLUTIONS.

Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of these Solutions for every variety of Analysis by Volumetric Methods, and on any System of Measurement; also Indicators, Test Papers, and all requisites.

Special Prices quoted to Large Consumers. Price List on application to

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PURE SULPHUROUS ACID, SULPHITES AND BISULPHITES OF LIME, SODA, &c. FOR EXPORT.

S. KEYS & CO. Limited, WEST BROMWICH.

JOHN GREENWOOD & SON,
BARROW STREET, OLDFIELD ROAD,
SALFORD, MANCHESTER.
Branch Works, Windsor Bridge.



Sole Inventors and Patentees. Over 40 years' Experience. Manufacturers of improved and patent weighing machinery, adapted for chemical and all commercial purposes, also adapted to any national standard.

TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter. COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.
JOHN SPENCER, 2.00
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.



COILS OF ALL DESCRIPTIONS.

JOHN NICHOLSON & SONS,
Chemical Works, LEEDS, specially produce this ACID from BRIMSTONE, for making SULPHATE OF AMMONIA of high quality and good colour. Delivery in our own Railway Tank-Wagons or Carboys. Highest references and all particulars supplied on application

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30 & 31, ST. SWITHIN'S LANE,
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CANNINGTON, SHAW & CO., LIMITED,

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SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street, E.C.

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WALKER'S PATENT
AIR COMPRESSING ENGINES.
GAS COMPRESSING ENGINES.
70,000 I.H.P. ALREADY AT WORK.

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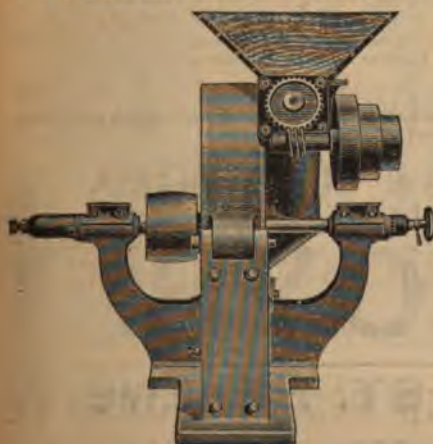
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Can readily PURIFY THEIR WASTE WATERS by the simple and inexpensive
ALUMINO-FERRIC PROCESS.

Full Particulars on application to—
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ZINC OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

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Will grind and dress any material,
animal, vegetable, or mineral.
Vibration reduced to a minimum.
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a speciality.
Made Self and Hand Feed.
Wrought Iron Pulleys, Shafting,
Hangers, and Pedestals.

W. H. PEACOCK,
Chemical Engineer & Millwright,
BRADFORD, MANCHESTER.

Tenders.

BUXTON LOCAL BOARD.

TENDERS FOR TAR AND LIQUOR.

THE Buxton Local Board invite
TENDERS for the purchase of the surplus TAR
and LIQUOR produced at their Works in Ashwood Dale,
for One, Two, or Three years, commencing from the 30th
of June next.

Further Particulars and Forms of Tender to be obtained
of Mr. G. Smedley, Gas Office, Buxton.

Tenders, endorsed "Tender for Tar and Liquor," to be
addressed to the Chairman of the Gas Committee, and
delivered not later than Twelve Noon on the 3rd of June.

The Board do not bind themselves to accept the highest
or any tender.

By order,
JOSIAH TAYLOR,
Clerk.

THE SHREWSBURY GAS LIGHT COMPANY

DISPOSAL OF SURPLUS TAR.

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ticulars), which may be obtained on application at the
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Secretary and Manager.

Gas Works, Shrewsbury,
18th May, 1893.

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MARK FINCH, Chemical Engineer and Expert, supplies Plans and superintends the erection of Chemical Works, the alteration and adaptation of old plant, and undertakes the supervision of the working of apparatus which is not giving entire satisfaction, with a view to its improvement.—Address Mark Finch, Rowsham, Aylesbury.

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Advertisements which arrive too late for insertion on this page will be found on first page of Matter (opposite Leading Article).

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Just Published, fcap. 8vo., cloth, 1s. 6d.

CHEMISTRY FOR ALL: In accordance with the Syllabus of the Department of Science and Art. By W. J. HARRISON, F.G.S., and R. J. BAILEY.

London: BLACKIE and SON (Limited), Old Bailey.

DO YOU USE STANDARD SOLUTIONS?

If so, write to us for our latest circular and price list, we guarantee all to be absolutely correct.
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PHILIP HARRIS & CO., Ltd., 144 and 146, Edmund Street, BIRMINGHAM.
Contractors to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.

STONEWARE ACID PANS, COCKS, RECEIVERS, &c. JAS. STIFF & SONS,

LAMBETH, LONDON, S.E.,

MANUFACTURE EVERY KIND OF VITRIFIED STONEWARE,
CHEMICAL APPARATUS,
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CONDENSING WORMS, PLUMBAGO & FIRE-CLAY CRUCIBLES.

PURE SULPHUROUS ACID, SULPHITES AND BISULPHITES OF LIME, SODA, &c. FOR EXPORT.

S. KEYS & CO. Limited, WEST BROMWICH.

ACCURATE STANDARD SOLUTIONS.

Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of these Solutions for every variety of Analysis by Volumetric Methods, and on any System of Measurement; also Indicators, Test Papers, and all requisites.

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SALFORD, MANCHESTER.

Branch Works, Windsor Bridge.



Sole Inventors and Patenteers. Over 40 years' Experience. Manufacturers of improved and patent weighing machinery, adapted for chemical and all commercial purposes, also adapted to any national standard.

TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid

Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. August Smith's Composition. In stock to 8 in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER, 2.00

Globe Tube Works, Wednesbury, and 44, Great St. Thomas Apostle, Cannon-st., London, E.C.

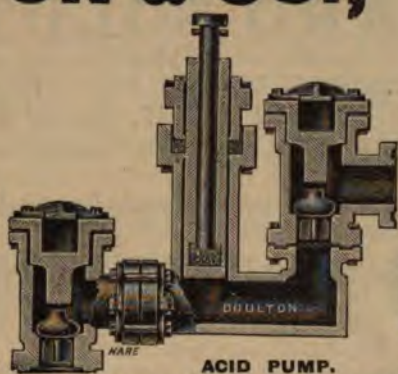
CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

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Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street, E.C.

DOULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
**STONEWARE
CHEMICAL
APPARATUS**
OF
EVERY DESCRIPTION.PRICE LISTS
ON APPLICATION.

ACID PUMP.

**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.**SHOWROOMS:** 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 6, Rue de Paradis, Paris.**SPENCE'S****LUMP ALUM**

(POTASH or AMMONIA).

The Leading Make for nearly Half a Century.**Also PURE SULPHATE OF ALUMINA and ALUMINOFERRIC.****PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.**

BLAYDON MANURE AND ALKALI COMP.'S

**PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.****SOLIDIFIED SULPHURIC ACID**

(SUPER SULPHATE OF SODA).

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.**Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.****FAIRBURN & HALL,** Chief Office } 63, Royal Exchange, MANCHESTER.

LONDON: 99, Fenchurch St., E.C. LEEDS: 18, Swinegate. HULL: 38-42, Waterhouse Lane. GLASGOW: 129, Trongate.

OVER 25,000 ARE WORKING.**Tenders.**

BOROUGH OF OLDHAM.

THE Gas Works Committee invite
tenders for the Tar and Ammoniacal Liquor to be
produced at their different Gas Stations for a period of one
year commencing 1st July next.The yearly make of Tar is about 6,400 tons, and of
Ammoniacal Liquor about 2,400,000 gallons.Particulars and forms of tender can be obtained on
application to Mr. Herbert Andrew, Gas and Water
Offices, Oldham, to whom tenders are to be sent on or
before Tuesday, 13th June, 1893.A. NICHOLSON,
TOWN CLERK

Oldham, 24th May, 1893.

TENDERS FOR TAR.

THE Middleton Corporation are pre-
pared to receive tenders for about 300 tons of Tar,
now lying at the Gas Works, Middleton, also for their
surplus Tar for year ending June 30th, 1894.

Coal carbonised about 8,500 tons.

Tenders addressed to the Chairman of the Gas Committee
to be delivered at my office on or before Wednesday, 14th
June, 1893, endorsed Tender for Tar.Further particulars and Form of Tender may be obtained
by written application only to Mr. Duxbury, Gas Manager.The Corporation do not bind themselves to accept the
lowest or any tender.

FREDERICK ENTWISTLE,

Town Hall, Middleton, Nr. Manchester.
24th May, 1893.

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TO MANUFACTURING CHEMISTS & OTHERS.

GENTLEMAN (25), now assistant
to a prominent analyst, is desirous of joining Manu-
facturing Firm as Junior Partner or Chemist with an
interest in the business.—Address "Commercial," Chem-
ical Trade Journal Office.**WANTED Experienced Men** to
work plant for rectifying Sulphuric Acid in glass
retorts.—Apply, Manager, Britonferry Chemical Works,
Britonferry, South Wales.**EGG for Vitriol** (second hand)wanted; state capacity, price, and time in use.—S.
A., Chemical Trade Journal Office, Manchester.**POTASH ALUM.**—For Sale 50 to60 tons Potash Alum in 4 to 5 ton lots, or in one lot
to clear. Suitable for Tanners, Curriers and Paper Manu-
facturers. Sample sent if required. For full particulars,
address W 59, Chemical Trade Journal Office, Man-
chester.**WANTED Offers** for CommercialFerric Sulphate in four ton lots.—W. S. Corder &
Co., Low Lights, North Shields.**WANTED Second Hand Bone**Steamer.—W. S. Corder & Co., Low Lights,
North Shields.**VATS and Casks** of all sizes, newand second hand; a large quantity in stock. Price
given for repairs and alterations.—Campbell & Swainston
Ltd., Argyll Wharf, Limehouse, London, E.**SECOND-HAND Beer Hogsheads**and Barrels for sale cheap. Campbell & Swainston
Ltd., Argyll Wharf, Limehouse, London, E.**GOOD Second-hand Rum Puncheons**for sale, cheap. Apply to Campbell & Swainston
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ADVERTISER, speaking Spanish and Portuguese fluently, is open to an engagement as Manager of Copper Cementation or Extraction Works, home or abroad; excellent testimonials; last appointment held for 10 years. Also practically acquainted with management of Claudet's silver process. Is thoroughly qualified as chemist and assayer.—Address B 54, *Chemical Trade Journal* office, Manchester.

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OLIVOLINE and ATEROLINE.
Two perfect non-gumming Lubricating Oils, 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

TWO Disintegrators, one Edge Runner Mill, several Stone and Ore Breakers, two Roller Mills, and one Mixing Machine, good as new. S. Mason & Co., Stone Breaking and Grinding Machine Makers, Brandon Street, Leicester.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

AMMONIA.
FOR SALE, the Works fitted with modern machinery for the manufacture of Liquid Ammonia. Abundant supply of good Water. Close to station. Inquiries to D. C. Williamson, auctioneer, Nelson Square, Bolton.

QUOTATIONS WANTED for Fluid Magnesia Plants, of all sizes, with capacity and to state clearly how strong the plants are capable of making Fluid Magnesia—i.e. how many grains MgO per fluid ounce it is possible to obtain. "Magnesia," *Chemical Trade Journal* Office.

QUOTATIONS given for Fluid Magnesia of highest possible strengths for manufacturing or pharmaceutical purposes; also for any quantity of Carbonate, Calcined or Hydrate of Magnesia Buyers' samples matched.—The Washington Chemical Co., Washington Station, Co. Durham.

SULPHURIC Acid from Pyrites for Sale, 500 tons, 150° Tw. Best offers wanted f.o.r. or boat Lincolnshire.—Address L 199, *Chemical Trade Journal* Office.

VATS, Squares, Rounds, and Wooden Vessels of every description. Manufacturing Chemists who may be requiring anything in this direction would do well to write us for a quotation, as having had an extensive experience with regard to this class of work we are of course in a position to compete most favourably with anyone in the trade.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

SQUARES, Rounds, Vats, Tubs &c. We have on hand an immense and most varied stock of the above, recently taken out of Breweries, Distilleries, &c., and we would respectfully invite Manufacturing Chemists who may be requiring anything in this direction to communicate with us.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

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AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Leeds and Wakefield.

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OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of the first and third *Chemical Trade Journal* of each month.

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IRON and STEEL (butt or lap welded), and **FITTINGS** for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

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Sole Inventors and Patentees. Over 40 years' Experience. Manufacturers of improved and patent weighing machinery, adapted for chemical and all commercial purposes, also adapted to any national standard.

GREAT REDUCTION IN PRICE.

The most complete
Respirator

for protecting the Lungs and Throat from dust, poisonous gases, and all other impurities.

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SUGAR OF LEAD, WHITE AND BROWN.
OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
IDS, NITRATE & CHLORIDE OF BARIUM, &c.

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Will grind and dress any material,
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Vibration reduced to a minimum.

Twenty years' experience.

Grinding and Dressing Machinery
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Made Self and Hand Feed.

Wrought Iron Pulleys, Shafting,
Hangers, and Pedestals.

W. H. PEACOCK,
Chemical Engineer & Millwright,
BRADFORD, MANCHESTER.

Tenders.

BOROUGH OF OLDHAM.

THE Gas Works Committee invite
tenders for the Tar and Ammoniacal Liquor to be
produced at their different Gas Stations for a period of one
year commencing 1st July next.

The yearly make of Tar is about 6,400 tons, and of
Ammoniacal Liquor about 2,400,000 gallons.

Particulars and forms of tender can be obtained on
application to Mr. Herbert Andrew, Gas and Water
Offices, Oldham, to whom tenders are to be sent on or
before Tuesday, 13th June, 1893.

A. NICHOLSON,

TOWN CLERK

Oldham, 24th May, 1893.

THE SHREWSBURY GAS LIGHT COMPANY.

DISPOSAL OF SURPLUS TAR.

THE Directors of the above Com-
pany are desirous of receiving TENDERS for the
purchase of the surplus TAR made at their Works during
the Year commencing July 1st, 1893.

The estimated quantity for disposal is about 950 tons per
annum.

Tenders must be made on Forms (containing further par-
ticulars), which may be obtained on application at the
Company's Works, or by post, and must be sent in to the
undersigned not later than the 17th day of June, 1893.

The Directors do not bind themselves to accept the
highest or any Tender.

By order,

WM. BELTON, A.M.I.C.E.,
Secretary and Manager.

Gas Works, Shrewsbury,
18th May, 1893.

TENDERS FOR TAR.

THE Directors of the Huyton and
Roby Gas Co. invite tenders for the surplus TAR
made at their works for a period of six or twelve months
from the 30th inst.

Probable quantity about 120 tons per annum.

Price to be at per ton, delivered into the contractor's
tank wagons at the Company's siding (L. & N. W. Ry.
Co.), Huyton Quarry.

Sealed tenders, and endorsed "Tar" to be sent in to the
undersigned on or before Saturday, the 17th inst.

FRED. PRITCHARD,

Secretary and Manager.

Gas Office, Huyton Quarry,
Near Liverpool,
5th June, 1893.

TIPTON GAS WORKS.

TAR CONTRACTS.

THE Gas Committee of the Tipton
Local Board invite Tenders for the purchase of the
surplus TAR produced at the above works, during a period
of one, two, or three years from 1st July next.

Particulars may be obtained at the Gas Works, on
application to Mr. Vincent Hughes, the Engineer and
Manager.

The Tar may be delivered either into boats or on rail
(L. & N. W. Ry.) as may be required.

Sealed and endorsed Tenders to be sent to me, the
undersigned, not later than 10 a.m. on Friday, 23rd inst.

The Committee do not bind themselves to accept the
highest or any Tender.

By order,

GEO. M. WARING,
Clerk to the Board.

Public Offices, Tipton,
1st June, 1893.

Miscellaneous.

JOHN DAWSON AND CO., LIMITED,
KIRKHEATON ANILINE COLOUR AND
CHEMICAL WORKS, HUDDERSFIELD, IN
LIQUIDATION.

TO BE SOLD

As a going concern, the Freehold Works, together with the
fixed and loose plant, stock in trade, book-debts, and
goodwill of the above business, which has been established
for several years. The premises are new, having been
erected within the last eight years. The machinery and
plant are of the most modern construction, and in first-
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business. Splendid supply of water on the premises; the
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with premises and machinery well adapted, at reasonable
terms. For further particulars and cards to view, apply to
Messrs. Ramsden, Sykes & Ramsden, Solicitors, 1, West-
gate, Huddersfield, or to the Liquidator and Receiver,
John F. Dyson, Chartered Accountant; Messrs. J.
Freeman, Dyson & Co., 24, Queen Street, Huddersfield, or
10, Commercial Buildings, Park-row, Leeds.

Miscellaneous.—Cont.

ADVERTISER is at liberty for immediate engagement as foreman or chageman to Sulphate Ammonia plant, Schwab's patent, and has practical knowledge of Chance's sulphur recovery process. Good testimonials.—Address "Sulphur," *Chemical Trade Journal Office*.

COLOUR MAKER.—Wanted a man experienced in making colours both dry and for paper stainers, with a knowledge of Chemistry.—Reply "Colour," *Chemical Trade Journal Office*, Manchester.

ASSAYER Wanted in Wales. Must be practical Copper smelter, competent to take charge of Furnace (also two furnace men). State salary required, and send copies of testimonials to "Smelter," c/o J. W. Vickers, 5, Nicholas-lane, London, E.C.

CHEMIST, Doctor of Philosophy, former assistant to eminent German Professor of Chemistry, having held several appointments in the Chemical industry, and having had considerable experience in laboratory work as well as technical, desires situation.—Address W. 62, *Chemical Trade Journal Office*.

ADVERTISER seeks situation in Tar, Colour or Chemical Works; organic and analytical work preferred. Four years at Science College, B. Sc., London. Good references. Moderate salary required.—Address M. S. C., *Chemical Trade Journal Office*, Manchester.

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GENTLEMAN (36), of considerable business experience, capable of erecting and working plant for the production of Oleo Oil, Stearine, Liquid Ammonia, Nitric and Muriatic Acids (Cylinder), etc., is desirous of engagement.—Apply 123, St. Domingo Vale, Liverpool.

WANTED, Man experienced in the manufacture of Red Oxide Paints from Green Copperas.—Address H 62, *Chemical Trade Journal Office*.

POTASH ALUM.—For Sale 50 to 60 tons Potash Alum in 4 to 5 ton lots, or in one lot to clear. Suitable for Tanners, Curriers and Paper Manufacturers. Sample sent if required. For full particulars, address W 59, *Chemical Trade Journal Office*, Manchester.

AS Manager or Foreman, Chemical, Tar, Benzol, &c., Works; many years' practical experience; can plan, erect new, or modernise old works; willing to take an interest.—Address "Naphtha," *Chemical Trade Journal Office*.

MARK FINCH, Chemical Engineer and Expert, supplies Plans and superintends the erection of Chemical Works, the alteration and adaptation of old plant, and undertakes the supervision of the working of apparatus which is not giving entire satisfaction, with a view to its improvement.—Address Mark Finch, Rowsam, Aylesbury.

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VATS and Casks of all sizes, new and second hand; a large quantity in stock. Prices given for repairs and alterations.—Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

SECOND-HAND Beer Hogsheads and Barrels for sale cheap. Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

GOOD Second-hand Rum Puncheons for sale, cheap. Apply to Campbell & Swainston Argyll Wharf, Thomas-street, Limehouse, London, E.

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TUBES

IRON and STEEL (butt or lap welded),
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SHERDLEY GLASSWORKS, ST. HELENS.

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Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street, E.C.

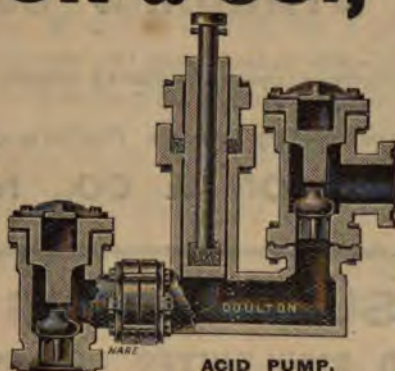
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Each Pump prior to
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is put into actual
work and tested.

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Granville St., Birmingham; 6, Rue de Paradis, Paris.

SPENCE'S**LUMP ALUM**

(POTASH or AMMONIA).

The Leading Make for nearly Half a Century.

Also PURE SULPHATE OF ALUMINA and ALUMINOFERRIC.

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BLAYDON MANURE AND ALKALI COMP'S

**PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.**

SOLIDIFIED SULPHURIC ACID
(SUPER SULPHATE OF SODA).

UNITED ALKALI COMP'S

HYPO-SULPHITE OF SODA,

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.

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59, Fenchurch St., E.C.

18, Swinegate.

38-42, Waterhouse Lane.

129, Trongate.

Tenders.

LONGWOOD GAS COMPANY.

TAR AND LIQUOR.

THE Directors of the above Company are prepared to receive TENDERS for the purchase of the surplus TAR and AMMONIACAL LIQUOR made at their Works during the Year commencing July 1st, 1893.

The Liquor to be 5° Twaddell.

The estimated quantity for disposal is about 950 tons.

Sealed tenders, endorsed "Tar and Liquor," addressed to the Chairman, Gas Offices, Longwood, Huddersfield, to be sent in not later than Tuesday, June 20th, 1893.

By order,

JOHN LOWE MITTON,
Manager and Secretary

TIPTON GAS WORKS.

TAR CONTRACTS.

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GEO. M. WARING,
Clerk to the Board.

Public Offices, Tipton,
1st June, 1893.

Miscellaneous.

ADVERTISER with good references (age 18), seeks re-engagement in Chemical Laboratory; good experience in electro metallurgy and the analysis of alloys.—W. H. W., 60, Queens Road, St. John's Wood, London, N.W.

CHEMIST OR MANAGER.—Engagement wanted by competent man (age 35), experienced in Alkali, Leblanc and Ammonia Soda, Vitriol, Bleach, Copper, and Silver, etc.—Address H., 119, Salisbury Road, Wavertree, Liverpool.

SOAP PLANT (modern) For Sale.

Practically equal to new. Three Coppers (one 10-ton, one 5-ton, one about 3-ton), frames, etc.—Apply to H. 64, Chemical Trade Journal Office, Manchester.

CHEMIST, Doctor of Philosophy, former assistant to eminent German Professor of Chemistry, having held several appointments in the Chemical industry, and having had considerable experience in laboratory work as well as technical, desires situation.—Address W. 62, Chemical Trade Journal Office.

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Tar, Colour or Chemical Works; organic and analytical work preferred. Four years at Science College, B. Sc., London. Good references. Moderate salary required.—Address M. S. C., Chemical Trade Journal Office, Manchester.

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WANTED, Man experienced in the manufacture of Red Oxide Paints from Green Copperas.—Address H. 62, Chemical Trade Journal Office.

SMALL Chemical Works for Sale.

Well suited for Sundries or Fine Chemicals, Washing Powders, Boiler Compositions, and the like. On good canal near Manchester. Present manager would remain with purchaser if desired. An excellent opportunity for a Chemist with about a thousand pounds. Apply to Box D 63, Chemical Trade Journal Office.

WANTED.—Carr's Disintegrator, good, second-hand; also Carters Disintegrator.—W. M. Fuller, Junr., 88, Great Charles Street, Birmingham.

VATS and Casks of all sizes, new and second hand; a large quantity in stock. Prices given for repairs and alterations.—Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

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Miscellaneous.—Cont.**OLIVOLINE and ATEROLINE.**

Two perfect non-gumming Lubricating Oils. 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

TWO Disintegrators, one Edge

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WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER. Sole Maker of MILBURN'S Patent Conoidal Stone Grinding Mills. Especially suitable for certain materials, Wet or Dry.

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GREAT REDUCTION IN PRICE.

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Specially adapted for workmen in white lead corroding works, glass and blast furnaces chemical pulverizing, paint and colour works, &c.

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F. L. RAMSDEN,
Manager and Engineer.

Gas Works, Burton-on-Trent,
June 8th, 1893.

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J. HEPWORTH, Engineer.

Gas Works, Carlisle,
June 7th, 1893.

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Gas-Works, Tottenham,
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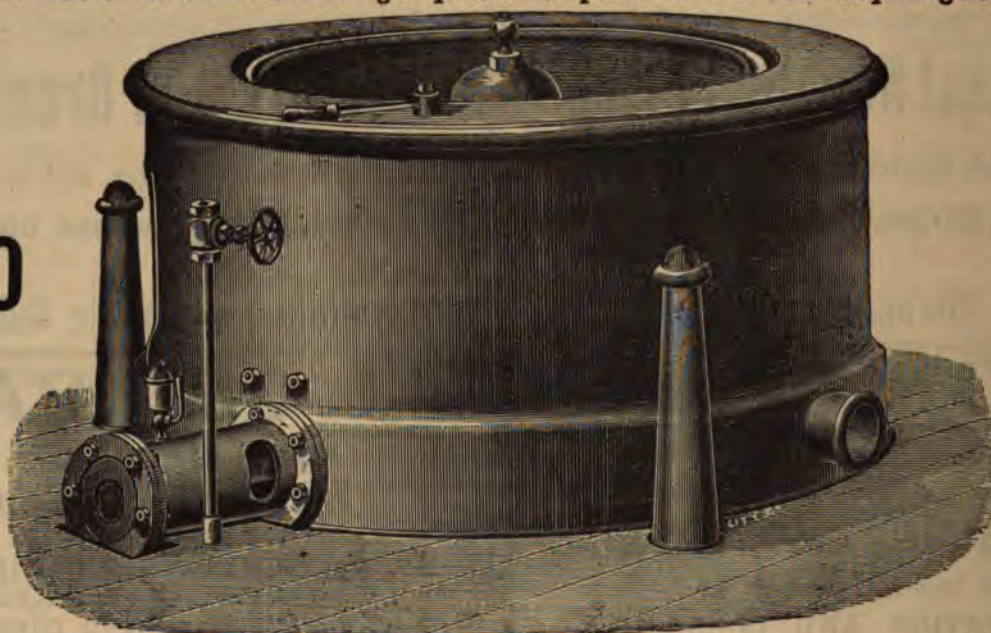
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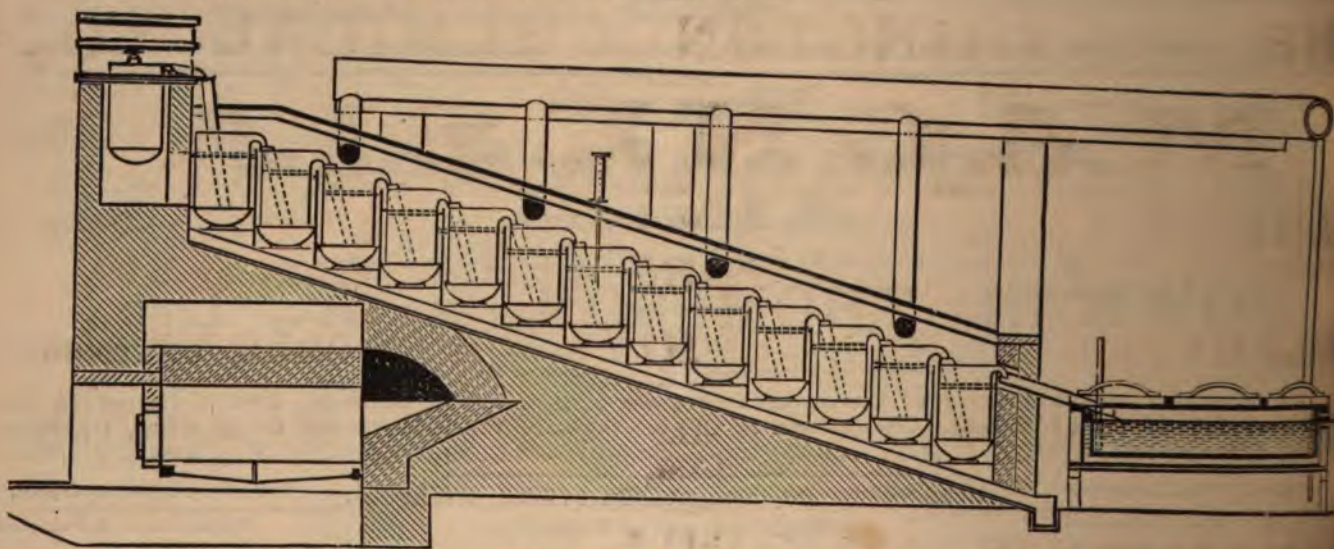
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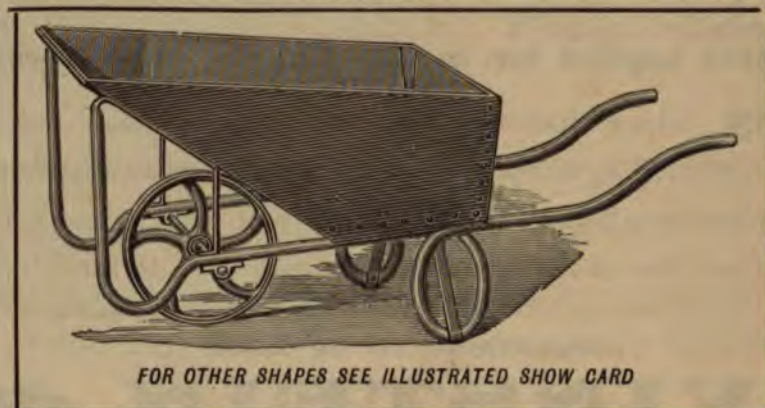
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Brick and Tile Manufacturers—

Buckley Brick and Tile Co., Ltd., Buckley, nr Chester.

Calcined Bones—

Hindle Rhodes & Co., Bone Works, Church, Lancs.

Caramel (Liquid or Solid)—

A. Boake, Roberts & Co., Stratford, London, E.—*See Adv.*

Carbolic Acid—

Lowe, C., & Co., Reddish, Stockport.

Carboys (Glass)—

Cannington, Shaw & Co. Ltd., St. Helens.—*See Adv.*

Carboy Hampers (Iron)—

Leigh, H., & Sons, Orlando Mill, Bolton.
Patent Iron Hamper Co., Woodley.
Robinson, H., Bradford, Manchester.

Cement (Portland) Manufacturers—

Brotherton & Co., Commercial Buildings, Leeds.
T. Hassall, Ducie-street, Piccadilly, Manchester.

Chemical Balances—

Woolley, Jas., Sons, & Co., Manchester.

Chemical and Scientific Booksellers—

Clay, W. F., 18, Teviot Place, Edinburgh.
Gurney & Jackson, 1, Paternoster Row, London, E.C.

Chemical Engineers—

Davis Bros., 32, Blackfriars-st., Manchester.—*See Adv.*

Chemical Merchants, Brokers & Agents—

Brotherton, Fred L., Plan 4, Hamburg.
Bradbury & Hirsch, 28, Exchange-st. East, Liverpool.
Greiff, R. W. & Co., 29, Mincing Lane, London, E.C.
Higginbottom & Co., 116, Portland-street, Manchester.
Waters, S. F., & Co., 85, Gracechurch-st., London, E.C.
Jackson, G. B., 6, Booth-street, Piccadilly, Manchester
Julius Hülsen & Co., Newcastle-on-Tyne.—*See Adv.*

Chemical Plant—

Bailey, W. H., & Co., Limited, Salford.
Cortin, J., Newcastle-on-Tyne.—*See Adv.*
Daglish, R. & Co., St. Helens.—*See Adv.*
Davis Bros., 32, Blackfriars-st., Manchester.—*See Adv.*
Fielding, Hannah, Fairfield Bridge Stoneyard, Droylsden
Heyes, W., St. Helens.
Holmes, W. C., & Co., Gas Engineers, Huddersfield.
Neill, W. & Son, St. Helens.—*See Adv.*
Robinson, Cooks & Co., St. Helens.
Scott, Geo. & Son, 44, Christian-st., London, E.
Widnes Foundry Co., Widnes
Wood's Patent Mills Co., Stockwith-on-Trent, Gainsboro'

Coils (Tubular)—

Aird, Joseph, Great Bridge, Staffordshire.—*See Adv.*
Lloyd & Lloyd, Albion Tube Works, Birmingham.

Copperas—

Bailes & Hallsworth, Armley, Leeds.

Drying Plant—

Tolch, Leop., 38, Byrom-street, Liverpool.

Dust-Fuel Furnaces—

Meldrum Bros., Atlantic Works, City-rd., Manchester.

Dyers' Chemicals—

Hope, A., jun., & Co., Coatbridge-st., Glasgow.

Filter and Press Cloths—

Porritt Bro. & Austin, Stubbins Vale Mills, Ramasbottom.
Stead, J. F., Skinner-lane, Leeds.

Filter-Presses—

(Dehne's) C. Harzer, Billiter-bldgs., Billiter-st., London E.C
Daglish, Robt., & Co. St. Helens.—*See Adv.*
Manlove, Allott & Co., Limited, Nottingham.—*See Adv.*
Neill, W. & Son, St. Helens.—*See Adv.*

Fine Chemicals—

Harris, P. & Co., Limited, 146, Edmund-st., Birmingham.

Fire Bricks—

Sankey, J. H., Essex Wharf, Canning Town, London, E.

Glass Bottles—

Evans, 8, Cleveland-square, Liverpool.
Jackson, F., & Co., 10, Half Moon-street Manchester.

Glass Lined Tubing—

Rylands, Dan, Limited, Barnsley.

Glue—

Bindley T. R. B. & Son, Smethwick, nr. Birmingham.
The Animal Products Co., Ltd., Benson Street, Liverpool—
[*See Adv.*]

Glycerine—

Hazlehurst & Sons, Runcorn.—*See Adv.*

Grinding Machinery—

Corcoran, B., 31, Mark Lane, London.
Follows & Bate, Ltd., Gorton, Manchester.—*See Adv.*
Wood's Patent Mills Co., Stockwith-on-Trent, Gainsboro'.

Hydro-Extractors—

Broadbent, T. & Sons, Chapel-hill, Huddersfield.—*See Adv.*
Manlove, Allott, & Co., Limited, Nottingham.—*See Adv.*

Hyposulphite of Soda—

Greiff, R. W. & Co., 29, Mincing Lane, London, E.C.

Ivory Black—

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Ivoryite—

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Woolley, James, Sons & Co., 69, Market St., Manchester.

Lead Salts—

Lindsey, C. R. & Co., Clayton, nr. Manchester.—*See Adv.*

Magnesia—

Washington Chemical Co., Washington, Durham.

Magnesium Salts—

A. Boake, Roberts & Co., Stratford, London, E.

Manganese & Mineral Merchant—

Blackwell, Geo. G., 25-27 Irwell Chrs., Liverpool.—*See Adv.*

Methylated Spirits—

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Mixing and Kneading Machinery—

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Muriatic Acid—

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Nitric Acid and Nitrates—

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Oil Engines—

Tolch, Leop., 38, Byrom-street, Liverpool.

Oil & Tallow Refiners & Merchants—

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J. R. Peace & Co., Ormond-st., Liverpool.
Blumann & Stern, Ltd., 43, London Wall, London, E.C.

Oxides and Venetian Reds—

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Packing—

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Patent Agents—

Redfern, G. F. & Co., 4, South-st., Finsbury, E.C.—*See Adv.*

Peroxide of Hydrogen—

Burton, W. & Sons, Green Street, Bethnal-green, London

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Phosphate (Precipitated)—

Marple Chemical Co., Marple, near Stockport.

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A. Boake, Roberts & Co., Stratford, London, E.—*See Adv.*
Tyler, Thos., & Co., Abbey Lane, Stratford, E.—*See Adv.*

Pitch Importers and Merchants—

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Illingworth, Thos., North Dean, nr. Halifax.—*See Adv.*

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Davis, Bros., 32, Blackfriars-st., Manchester.—*See Adv.*
Neill, W. & Son, St. Helens.—*See Adv.*

Sulphur—

Johnson & Hooper, Stratford, London.

The United Alkali Co., Ltd., Liverpool.

Sulphuric Acid—

Howarth & Co., Miles Platting, Manchester.—*See Adv.*
Illingworth, Thos., North Dean, nr. Halifax.—*See Adv.*
Nicholson, John & Sons, Leeds.—*See Adv.*
Riley, J., & Sons, Hapton, Accrington.—*See Adv.*

Sulphurous Acid—

Bailey Wm. & Sons, Horseley Fields Works, Wolver-

bampton.
A. Boake, Roberts & Co., Stratford, London, E.—*See Adv.*
Keys, Samuel & Co., West Bromwich.
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